

Exhibit 1

NATIONAL COLLEGIATE ATHLETIC ASSOCIATION, et al.

v.

CHRISTOPHER J. CHRISTIE, et al.

EXPERT REPORT OF PROFESSOR ROBERT D. WILLIG

NOVEMBER 21, 2012

I. INTRODUCTION AND SUMMARY

A. Qualifications

1. My name is Robert D. Willig. I am Professor of Economics and Public Affairs at Princeton University where I have held a joint appointment in the Economics Department and at the Woodrow Wilson School of Public and International Affairs for 34 years. Previously, I was a Supervisor in the Economics Research Department of Bell Laboratories. My teaching and research have specialized in the fields of industrial organization, government-business relations, and welfare theory. I served as Deputy Assistant Attorney General for Economics in the Antitrust Division of the United States Department of Justice from 1989 to 1991, and in that capacity served as the Division's Chief Economist. I have authored some 80 articles in the economics literature, and I am the author of *Welfare Analysis of Policies Affecting Prices and Products and Contestable Markets* and *The Theory of Industry Structure* (with W. Baumol and J. Panzar). I am also a co-editor of *The Handbook of Industrial Organization*, which summarizes the state of economic thinking on the structure of industries and the nature of competition among firms, and have served on the editorial boards of the *American Economic Review*, the *Journal of Industrial Economics* and the MIT Press Series on Regulation. I am an elected Fellow of the Econometric Society and was an associate of The Center for International Studies.

2. I have appeared as an expert witness before Congress, federal and state courts, federal administrative agencies, and state public utility commissions on subjects involving competition, regulation, intellectual property rights, and antitrust. I have also served as a consultant to the Federal Trade Commission, the United States Department of Justice and many leading corporations on antitrust, regulation and policy issues.

3. My full curriculum vitae, and a list of prior testimony, are included in Appendix A to this report. A list of materials I have considered is attached as Appendix B.

B. Assignment

4. I have been asked by Counsel for the Defendants in this case to assess from an economic perspective whether there is evidence to support claims made by the Plaintiffs – four major professional sports leagues in the United States plus the NCAA¹ – that legalizing sports wagering in New Jersey would harm the Plaintiffs.² Specifically, the Leagues claim that such harm would derive from one or more of the following mechanisms:

- a. Increased wagering would lead to an increase in (or increased risk of) match fixing,³ which would undermine the integrity of the games and thereby reduce fan interest in the Leagues.
- b. Even if incidents of match fixing are not specifically identified, fans will become more suspicious that match fixing is occurring, e.g., they would question whether the performance of the players and/or officials was being influenced by match fixing whenever there were “close calls” or other unusual occurrences. Such a purported increase in concern over match fixing would be a distraction for fans and it would lead to reduced fan interest in the Leagues.
- c. Increased wagering would lead fans to root for teams/outcomes based on their financial interest as opposed to a “pure” interest in League competition. And, even if this were to increase fan interest in the short-term, it would ultimately undermine the bonds of loyalty that fans have with the Leagues and thereby drive

¹ I use the term “Leagues” herein to refer to the Plaintiffs in this matter: Major League Baseball (MLB), the National Football League (NFL), the National Basketball Association (NBA), the National Hockey League (NHL), and the National Collegiate Athletic Association (NCAA).

² “Complaint for Declarative and Injunctive Relief,” NCAA, et al, v. Christie, et al, 8/7/2012; Plaintiffs’ Memorandum of Law in Opposition to Defendants’ Motion to Dismiss the Complaint,” NCAA, et al, v. Christie, et al, 10/1/2012; and “Brief in Support of Plaintiffs’ Motion for Summary Judgment and, if Necessary, to Preserve the Status Quo, a Preliminary Injunction,” NCAA, et al, v. Christie, et al, 8/10/2012.

³ I use the term “match fixing” herein to refer to illegal manipulation of the outcome of a game, including point shaving.

fan interest down in the longer-term.

5. For all of the above, the ultimate theory of harm comes down to a purported reduction in fan interest, which would thereby reduce demand for the Leagues' products and reduce the value of the teams in the Leagues.

6. The basis for my opinions in this case is my experience, application of standard economic principles and analysis, and the documents and data listed in Appendix B. I understand that discovery is ongoing in this case, and I may supplement the analysis and conclusions presented herein as additional information and data become available to me.

7. Compass Lexecon, an economic consulting firm with which I am affiliated, bills my time at the rate of \$1,300 per hour for this matter. Compass Lexecon's fees and my compensation are not affected by the outcome of this litigation.

C. Conclusions

8. My overall conclusion is that the economic evidence does not support the Plaintiffs' contention that legalized sports wagering in New Jersey would harm the Leagues, under any of their theories or otherwise. This overall conclusion is based on the following summarized findings:

9. The relevant consideration here is the *incremental* effect of legalization in New Jersey on the Leagues, given the existence of legalized sports wagering in Nevada as well as illegal sports wagering, rather than the overall impact of sports wagering on the Leagues.⁴

10. The incremental effect of legalizing sports wagering in New Jersey would be twofold:

a. It would likely lead to a shift of a certain portion of sports wagering from illegal

⁴ I note that if legalization of sports wagering in New Jersey were to lead to widespread legalization across the country, it would not change any of my conclusions expressed herein.

to legal outlets, as has been seen with legalization of other types of wagering – horseracing and lotteries being prominent examples. Such a shift would lead to no net change in total sports wagering.

- b. It could stimulate a certain amount of sports wagering that would not otherwise occur. Such new (legal) wagering would result in an overall increase in total (legal plus illegal) sports wagering.

11. The shifting of sports wagering from illegal to legal outlets would likely not harm the Leagues – in fact, they would likely benefit from such a shift. And the economic evidence does not provide a basis for concluding that an increase in overall sports wagering would harm the Leagues under the Plaintiffs’ (or other) theories of harm. The reasons for this latter finding are:

- a. First, the Leagues have flourished – based on a number of different measures of fan interest and team value – over many years, even as sports wagering – legal and illegal – has grown dramatically. This fails to support and undermines any theory of harm that the Plaintiffs may put forth. That is, if any of the Leagues’ theories of harm were valid, one would expect to have seen the purported impacts over the past 40 years as sports wagering has grown dramatically. Thus, the fact that League performance (fan interest, demand for League products, and team values) has steadily risen over this period strongly challenges any of the theories of harm.
- b. Second, the Plaintiffs’ theories of harm are largely based on imagined impacts of legalized sports wagering on actual or perceived match fixing. However, while the amount of sports wagering (legal and illegal) has grown rapidly, there does

not appear to have been an increase in reported match fixing. In fact, such incidents have remained exceedingly rare over many decades. As such, there is no indication that an increase in legal sports wagering resulting from legalization in New Jersey would materially affect actual or perceived match fixing.

- c. Third, there is no economic evidence that the legalization of sports wagering in New Jersey would increase the incentive of any parties to engage in match fixing. Absent such a change in incentives, one would not expect an increase in actual or perceived match fixing, or any significant fan concerns related to match fixing.
- d. Fourth, in view of the state of the evidence regarding the incidence of and incentives for match fixing, any theory of harm that is based on fans' expectations and perceptions is unfounded. That is, a claim that fans would become significantly more concerned with match fixing or otherwise distracted by the possibility of match fixing as a result of legalized sports wagering in New Jersey would require an assumption that fans would form sustained views that are unsupported by past or current experience or facts. And, there is no basis to presume that fans would behave in this fashion.
- e. Fifth, there is evidence that legalized sports wagering in New Jersey will provide benefits to the Leagues – i.e., stimulate fan interest. Such benefits would offset purported harm, and the Plaintiffs' have not shown that their claimed harms outweigh the benefits.

12. Finally, I note that the experience with the English Premier League ("EPL") provides further support for my conclusions: the popularity of the EPL has risen dramatically since it was formed in 1992, a period in which wagering on the EPL has been legal in the UK,

and, in fact, EPL teams have embraced wagering (e.g., teams have sportsbooks as sponsors and allow sportsbooks to operate in stadiums).

13. The remainder of this report is organized as follows:
 - a. Section II discusses the growth in sports wagering – both legal and illegal – and the likely effects of legalization in New Jersey, drawing on experience from horseracing and lotteries.
 - b. Section III shows that the Leagues have flourished – based on a variety of measures of team value and fan interest – at the same time that sports wagering grew significantly.
 - c. Section IV provides a review of match fixing cases over the years, indicating that there has been no increase in the incidence of match fixing as sports wagering has grown significantly.
 - d. Section V shows that, from an economic perspective, legalization of sports wagering in New Jersey would not increase the incentive for parties to engage in match fixing.
 - e. Section VI discusses potential benefits to the Leagues of legalization of sports wagering in New Jersey.
 - f. Section VII provides a summary and concluding remarks.

II. GROWTH OF SPORTS WAGERING AND IMPACT OF LEGALIZATION BASED ON EXPERIENCE WITH LOTTERIES AND HORSERACING

14. In this section, I describe the dramatic growth in sports wagering over time, beginning with the legal outlets and then briefly discussing illegal outlets, which account for the vast majority of the total volume.

A. Growth of Legal Sports Wagering

15. The primary legal outlets for sports wagering are bookmakers (“sportsbooks”) located in the state of Nevada. Sports wagering was legalized in Nevada in 1949, with the sportsbooks initially established as “turf clubs” that were separate from the casinos.⁵ At that time, the federal tax rate was 10% (of the amount wagered), which made it difficult for legal outlets to compete with illegal outlets.⁶ Not surprisingly, wagering volumes through the legal sportsbooks were relatively low during this early period: e.g., total wagering volume was less than \$400,000 in 1970,⁷ about 20 years after sports wagering was first legalized. (Note: \$400,000 in 1970 is equivalent to about \$2 million in current (2012) dollars when adjusted for inflation.)

16. Wagering at legal sportsbooks in Nevada began to pick up in the mid-1970s as the result of two regulatory changes: (a) the federal tax rate was reduced to 2% in 1974, and (b) sportsbooks were allowed to be located in casinos starting in 1975.⁸ By 1980, the total amount wagered at Nevada sportsbooks was about \$300 million (\$700 million in current dollars).⁹

17. Legal sports wagering in Nevada continued to rise in the 1980s and 1990s, largely as a result of two factors: (a) the federal tax rate was reduced to 0.25% in 1983,¹⁰ and (b) there was a significant increase in the amount of sports broadcasting.¹¹ By 1990, wagering volume

⁵ Davies, Richard O. and Richard G. Abram, “Betting the Line, Sports Wagering in American Life,” The Ohio State University Press, 2001 (“Davies and Abram (2001)”), pages 122-123.

⁶ See “Gambling in America,” Final Report of the Commission on the Review of the National Policy, Washington, 1976 (“Gambling in America (1976)”), page 130; and Davies and Abram (2001), pages 122-123.

⁷ See Strumpf, K Coleman S., “Illegal Sports Bookmakers,” Department of Economics University of North Carolina at Chapel Hill, February 2003 (“Strumpf (2003)”), page 46.

⁸ See Frey, James H., “Gambling on Sport: Policy Issues,” Journal of Gambling Studies Vol. 8(4), Winter 1992, pages 351-360 (“Frey (1992)”), at page 353; “Gambling in America” (1976), page 130; Davies and Abram (2001), pages 122-123.

⁹ See Strumpf (2003), page 46.

¹⁰ See Sauer, R., “The Economics of Wagering Markets,” Journal of Economic Literature, No. 37, pages 2021-2064 (1998) (“Sauer (1998)”), page 2022; and Frey (1992), page 353; Davies and Abram (2001), page 128; and <http://www.bettingsports.com/sports-betting-in-nevada/history/>.

¹¹ See Davies and Abram (2001), pages 4, 87, 145; Udovicic, Ante Z. “Special Report Sports and Gambling a Good

was about \$1.5 billion (\$2.4 billion in current dollars), and it has generally risen since then, reaching about \$2.9 billion in 2011 (\$2.9 billion in current dollars).

18. Exhibit II-A-1 shows the total legal sports wagering volume in Nevada over time, adjusted for inflation to current dollars.¹² It shows a dramatic rise following the changes discussed above. Volumes were negligible prior to the mid-1970s and current volumes are about four times the volumes seen in 1980 (adjusted for inflation). More recently, sports wagering volume has tended to follow overall economic cycles. This exhibit also shows the number of outlets (sportsbooks) in Nevada, which has also increased dramatically over time: from a dozen or fewer sportsbooks in the early 1970s to over 180 today.

19. Exhibit II-A-2 provides breakdowns of legal sports wagering volumes at Nevada sportsbooks by sport for 1992-2011. As seen in these data, football has accounted for the biggest share of the volume: the breakdown is (very roughly) 40-50% football, 25-30% basketball, 20-25% baseball, and 5-10% other, with some variations over time.¹³

20. While Nevada accounts for the vast majority of legal sports wagering in the United States, sports wagering is legal to a certain extent in three other states – Delaware, Montana, and Oregon.¹⁴ Delaware currently has sports wagering: its program started in 2009, with wagering allowed only on the NFL with multi-game parlay cards.¹⁵ Oregon had a lottery

Mix? I Wouldn't Bet on It," *Marquette Sports Law Journal*, 8:4, pages 401-427 (1998) ("Udovicic (1998)"), pages 405-406; and Sasuly, Richard, "Bookies and Bettors, Two Hundred Years of Gambling," Holt, Rinehart and Winston, 1982 ("Sasuly (1982)"), page 186.

¹² Figures are adjusted to 2012 dollars using the GDP Implicit Price Deflator.

¹³ Note: Nevada does not provide a breakdown of wagering between professional and college sports. The American Gaming Association states that the breakdown is roughly two-thirds professional, one-third college (see American Gaming Association, "Sports Wagering," <http://www.americangaming.org/industry-resources/research/fact-sheets/sports-wagering>).

¹⁴ These three other states were grandfathered under PASPA. See Udovicic (1998), page 402; and Light, Glenn, Karl Rutledge, and Quinton Singleton, "Betting on the U.S. Market: A Discussion of the Legality of Sports Gaming Businesses," Occasional Paper Series 12, Las Vegas: Center for Gaming Research, University Libraries, University of Nevada Las Vegas, 2011, page 11.

¹⁵ See Delaware Lottery, "Delaware Sports Lottery," <http://www.delottery.com/games/sports/>; and Delaware Lottery, "Delaware Lottery to Expand Sports Wagering Offerings," press release, November 20, 2009,

game based on NFL games starting in 1989, but that was terminated in 2007.¹⁶ Montana allows “sports pools, fantasy sports leagues and sports tab games,” which are “non-banking games in which players bet against and settle with each other rather than betting against and settling with the house.”¹⁷ And, Montana has a fantasy football game – “Montana Sports Action Fantasy Football” – as part of its state lottery.¹⁸

B. Growth of Illegal Sports Wagering

21. It is well-accepted, however, that the vast majority of sports wagering in the United States has been illegal – either through the traditional local “bookies” or, more recently, internet sports wagering sites located offshore. The American Gaming Association, for example, estimates that “Nevada’s legal sports wagering represents less than 1 percent of all sports wagering nationwide.”¹⁹

22. I have compiled various estimates of illegal sports wagering volumes over time. Exhibit II-A-3 summarizes these estimates, adjusted for inflation to current dollars. The earliest estimates put the volume at around \$2.5 billion in 1974 (\$9 billion in current dollars), increasing to around \$30 billion in 1989 (\$50 billion in current dollars). A widely cited report prepared by the National Gambling Impact Study Commission in 1999 placed the figure at \$80 billion to \$380 billion per year (about \$105 to \$500 billion in current dollars).²⁰ The most recent estimates generally fall in the \$270 to \$500 billion range (current dollars).²¹

23. In fact, the FBI estimates that \$2.5 billion is wagered illegally on March Madness

<http://delottery.com/presses/20091120.asp>.

¹⁶ See “History, A Look Back at the Oregon Lottery,” <http://www.oregonlottery.org/About/Lottery101/History.aspx>.

¹⁷ See “Gambling Laws,” Montana Department of Justice (<https://doj.mt.gov/gaming/gambling-laws-administrative-rules/>).

¹⁸ See “Montana Sports Action Fantasy Football,” Montana State Lottery (<http://montanalottery.com/fantasyFootball>).

¹⁹ See American Gaming Association, “Sports Wagering,” <http://www.americangaming.org/industry-resources/research/fact-sheets/sports-wagering>.

²⁰ “Final Report,” National Gambling Impact Study Commission, June 18, 1999, page 2-14.

²¹ See Exhibit II-A-3.

alone,²² which is about equal to the total volume of legal sports wagering in Nevada across all sports/events. In comparison, legal wagering on March Madness in Nevada is about \$80-90 million, which is less than 4% of total wagering on March Madness.²³

24. Wagering on the Super Bowl may be even greater: the American Gaming Association indicates that \$93.9 million was bet legally in Nevada on the 2012 Super Bowl and that this represented just 1.5% of the total amount bet on that game.²⁴ That puts total illegal Super Bowl wagering at over \$6 billion, which is more than double the total of legal wagering in Nevada on all sports.

25. The figures above are, of course, rough, but demonstrate two important points: (a) the amount of illegal sports wagering, like legal sports wagering, has grown dramatically over the last 40 years; and (b) illegal sports wagering volume has consistently dwarfed the amount of legal sports wagering.

C. Impact of Legalization – Experience with Lotteries and Horseracing

26. I next turn to the likely impact on sports wagering of legalization in New Jersey. For purposes of this assessment, it is useful to review the experience with legalization of two other forms of wagering: lotteries and horserace wagering.

27. Lotteries have a long history in the United States, dating back to the 17th century. Lotteries have been used by governments and other institutions to raise funds.²⁵ Lotteries have even been used by Ivy League colleges to raise funds.²⁶ Legal lotteries were effectively stopped

²² See American Gaming Association, "Sports Wagering," <http://www.americangaming.org/industry-resources/research/fact-sheets/sports-wagering>.

²³ See American Gaming Association, "Sports Wagering," <http://www.americangaming.org/industry-resources/research/fact-sheets/sports-wagering>.

²⁴ See American Gaming Association, "Sports Wagering," <http://www.americangaming.org/industry-resources/research/fact-sheets/sports-wagering>.

²⁵ See "Our History," Georgia (state) Lottery, <http://www.galottery.com/about-us/our-history/>.

²⁶ See Davies and Abram (2001), page 9, and Harvard University, "Records of Harvard lotteries, 1772-1814: an inventory," <http://oasis.lib.harvard.edu/oasis/deliver/~hua56010>.

in the United States in the late 19th century, as a result of state and federal legislation that followed a series of scandals and changing social values.²⁷

28. During the period in which legal lotteries were prohibited, illegal lotteries – “numbers games” – flourished.²⁸ These games were largely run by organized crime.²⁹ But that began to change when New Hampshire became the first state to re-adopt a lottery in 1964. Thirteen other states adopted lotteries by 1975, and 18 more states adopted lotteries in the 1980s.³⁰ Now, 43 states plus the District of Columbia, Puerto Rico, and the U.S. Virgin Islands have state-run lotteries.³¹ Not surprisingly, competition from legal state lotteries has resulted in illegal numbers games largely disappearing.³²

29. Horserace wagering followed a somewhat analogous pattern. Following a tumultuous period in the late 19th and early 20th century, interest in horseracing grew dramatically in the 1920s.³³ At that time, wagering on horseracing was legal only at the racetracks. But bets could be made off-track through illegal bookies, and “wire-rooms” became popular off-track gathering places for horse players.³⁴ At that time, illegal wagering on horseracing exceeded, perhaps by many multiples, the amount of legal wagering.³⁵

30. The popularity of horseracing continued to grow into the 1950s, and the number of race tracks and races increased significantly.³⁶ This increase in legal wagering outlets led to a

²⁷ See Wisman, Jon D., “State Lotteries: Using State Power to Fleece the Poor,” *Journal of Economic Issues*, 11:4 (December 2006), pages 955-966 (“Wisman (2006)”), at page 956.

²⁸ See Davies and Abram (2001), pages 93-94; and Wisman (2006), page 959.

²⁹ See Davies and Abram (2001), pages 93-94.

³⁰ See Coughlin, Cletus C., Thomas A. Garrett, and Rubén Hernández-Murillo, “The Geography, Economics, and Politics of Lottery Adoption,” *Federal Reserve Bank of St. Louis Review*, May/June 2006, 88(3), pp. 165-80 (“Coughlin (2006)”), pages 166-167.

³¹ See “Lottery Results,” USA.gov, <http://www.usa.gov/Topics/Lottery-Results.shtml>.

³² See Davies and Abram (2001), pages 93-94; and “Final Report of the Public Sector Gaming Study Commission,” 2000, page 24.

³³ See Davies and Abram (2001), pages 30-31.

³⁴ See Davies and Abram (2001), page 31.

³⁵ See Sasuly (1982), page 174.

³⁶ See Sasuly (1982), pages 173-175.

reduction in illegal wagering on horseracing.³⁷

31. A further, major, shift occurred as a result of the introduction of legalized off-track wagering on horseracing. New York became the first state to adopt legal off-track wagering in 1970.³⁸ It subsequently spread across the country, with 38 states having off-track betting by 1999.³⁹ And, this has led to a further reduction in illegal off-track wagering.⁴⁰ Moreover, it has been reported that the recent closure of off-track betting parlors in New York has led to increased business for (illegal) bookies.⁴¹

32. Turning back to legalization of sports wagering in New Jersey, historical experience with lotteries and horserace wagering is indicative of two effects:

- a. First, it would likely shift some portion of sports wagering from illegal outlets to legal outlets, as seen with the histories of other forms of wagering. This may well be the primary effect. In fact, if legalization in New Jersey led to widespread legalization of sports wagering around the country, the likely effect would be a sizable reduction in illegal sports wagering.
- b. Second, it may lead to some people wagering (legally) on sports who would otherwise not do so. This could increase the total amount of sports wagering, although there is no evidence that this would adversely affect the Leagues, for the reasons I discuss in the next several sections.

III. THE LEAGUES HAVE FLOURISHED OVER THE PERIOD THAT SPORTS WAGERING HAS INCREASED DRAMATICALLY

33. This section examines the performance of the Leagues over the period in which

³⁷ See Davies and Abram (2001), page 79, Sasuly (1982), pages 173-175 and 182.

³⁸ See "Final Report," National Gambling Impact Study Commission, June 18, 1999, page 2-13.

³⁹ See "Final Report," National Gambling Impact Study Commission, June 18, 1999, page 2-13.

⁴⁰ See http://xwebapp.ustrotting.com/absolutenm/templates/hoofbeats_blog.aspx?articleid=40402&zoneid=77.

⁴¹ See http://www.nypost.com/p/news/local/bettor_biz_for_bookies_LMqmkrbhZGRWvm5UHaD9IP.

sports wagering – legal and illegal – has grown dramatically. There is no single, perfect, measure of performance in this context, so I have considered a variety of measures of the Leagues’ value and fan interest. As discussed below, all of the measures show the same general pattern over the period in which wagering has grown: the Leagues have flourished over this period. At the end of this section, I discuss the implications of this history for any theory of harm to the Leagues from legalization of sports wagering in New Jersey.

A. Performance of the Professional Leagues

34. I consider and chart a number of different measures of performance for the professional leagues. For all of these charts, I have chosen 1970 as the starting point because sports wagering volumes were small at that time and it is just before the rapid increases discussed above. I have included all available data through 2011. In these charts, I express the dollar figures in current (2012) dollars (i.e., adjusted for inflation) and I express the values for the leagues in aggregate as well as per team and/or per game, as appropriate.⁴² The specific measures are as follows:

- a. Exhibit III-A-1: number of teams
- b. Exhibit III-A-2: team value – aggregate (A) and per team (B)
- c. Exhibit III-A-3: attendance – aggregate (A), per team (B), and per game (C)
- d. Exhibit III-A-4: total revenue – aggregate (A) and per team (B)
- e. Exhibit III-A-5: broadcast revenue – aggregate (A) and per team (B)

35. These data show a consistent pattern: steady growth in all dimensions for all professional leagues. A few highlights are as follows:

- a. The number of teams in each of the four professional leagues has increased over time; particularly noteworthy are the NBA and NHL, where the numbers of teams

⁴² This accounts for changes in the number of teams and games over time.

have roughly doubled since 1970.

- b. The aggregate value of teams in each of the four professional leagues has risen dramatically since 1990 (the earliest available data). For example, the average value of NFL teams has increased from about \$200 million to about \$1 billion from 1991 to 2011 (adjusted for inflation). In total, the aggregate value of teams in all four professional leagues combined has increased from about \$15 billion in 1991 to \$68 billion in 2011 (adjusted for inflation).⁴³
- c. Attendance has steadily increased in each of the four professional leagues, whether measured in aggregate, per team, or per game (other than occasional blips related to labor disputes). Combining all four professional leagues, total attendance has increased from about 49 million in 1970 to about 133 million in 2011. This increase in attendance is far in excess of the increase in United States population over this period: from 1970 to 2011, the population increased by about 52%,⁴⁴ while league attendance increased by about 170%.
- d. Total team revenue has also risen significantly in each of the four professional leagues – in aggregate and per team. For example, revenue per team for MLB and NFL teams are now about 10 times the level seen in the early 1970s. National broadcast revenue has risen similarly,⁴⁵ with the exception of the NHL.⁴⁶

⁴³ The combined value of the four professional leagues increased by 350%, while the S&P 500 increased by only 120% over these 20 years (<http://finance.yahoo.com/q/hp?s=%5EGSPC&a=00&b=3&c=1991&d=10&e=21&f=2011&g=m>); all figures are adjusted for inflation.

⁴⁴ Population was 205.1 million in 1970 (see <http://www.census.gov/popest/data/national/asrh/pre-1980/PE-11.html>) and 311.6 million in 2011 (see <http://www.census.gov/popest/data/national/totals/2011/index.html>).

⁴⁵ Note: the step nature of the broadcast revenue is due to multi-year agreements being spread evenly in nominal\$ across the years of the agreement.

⁴⁶ The NHL accounts for a small portion of sports wagering. For example, one source estimates that the NHL plus NASCAR and golf accounts for less than 1% of sports wagering (<http://www.cnbc.com/id/34312813>).

B. Performance of the NCAA

36. I have used somewhat different measures of performance for the NCAA than for the professional sports; e.g., “team value” is not relevant for college sports.⁴⁷ And the available data are somewhat different for NCAA basketball and football. The specific measures that I have used here are as follows:

- a. Exhibit III-B-1: Number of Division I basketball teams and D-IA/FBS football teams
- b. Exhibit III-B-2: “March Madness” media rights revenue
- c. Exhibit III-B-3: Number of football bowl games
- d. Exhibit III-B-4: Football bowl game payout

37. As with the professional leagues, the NCAA data show a consistent pattern of growth over many years, a period during which wagering grew substantially. A few highlights are as follows:

- a. The number of schools in Division I basketball increased from 196 in 1970 to 335 in 2011, an increase of over 70%. The NCAA has three divisions – I, II, and III – with about one-third of the schools being in Division I.⁴⁸ Schools can apply to the NCAA to “move up” from Division II to Division I, which is the highest level of competition.⁴⁹ The fact that the number of schools in Division I has increased significantly is a clear indication of its success.
- b. On the football side, the NCAA further divided Division I football into two

⁴⁷ I focus herein on Division I men’s basketball and the Football Bowl Subdivision (“FBS,” formerly Division I-A), which are the primary revenue-generating divisions of the NCAA.

⁴⁸ See “About the NCAA, Membership” on NCAA website (340 of 1,066 schools are Division I) (<http://www.ncaa.org/wps/wcm/connect/public/ncaa/about+the+ncaa/membership+new>).

⁴⁹ See NCAA, “NCAA 2012-13 Division I Manual”, <http://www.ncaapublications.com/p-4284-2012-2013-ncaa-division-i-manual-available-for-order-now-for-delivery-after-aug-1.aspx>, Article 20.

subdivisions in 1978: Division I-A and I-AA,⁵⁰ and there was a major realignment of schools following the 1981 season (schools in the Ivy League and certain other conferences dropped down from I-A to I-AA) and the 1983 season (a number of the schools that had dropped down moved back up to D-IA). Following that initial shake-up, the total number of schools in the highest division increased from 105 in 1984 to 120 in 2012. Division I-A and I-AA were renamed the Football Bowl Subdivision and Football Championship Subdivision in 2006.⁵¹

- c. Perhaps the most dramatic growth has been in the popularity of the NCAA post-season Division I basketball championship tournament – aka “March Madness.” The growth in interest in that event is reflected in the media (TV) rights sold by the NCAA: the value of these rights have risen from about \$17 million per year in the early 1980s (about \$35 million in current dollars) to about \$770 million per year under the most recent agreement.⁵²
- d. In football, the growth in popularity is also reflected in the post-season, including the number of bowl games and payout to schools from such games. In 1978 (first year of Division I-A), there were 13 bowl games that generated an average payout of about \$3.4 million per game (current dollars), or about \$44 million in aggregate (current dollars). This has grown steadily over the years, and there are now 35 bowl games generating an average payout of about \$8.0 million per game (current dollars), or about \$280 million in aggregate (current dollars).

⁵⁰ See NCAA Football, “Football Bowl Subdivision Records,” 2012, http://fs.ncaa.org/Docs/stats/football_records/2012/fbs.pdf, page 2.

⁵¹ See NCAA Football, “Football Bowl Subdivision Records,” 2012, http://fs.ncaa.org/Docs/stats/football_records/2012/fbs.pdf, page 2.

⁵² Note that the step pattern in Exhibit III-B-2 derives from multi-year agreements being spread evenly over the contract life in (nominal\$).

C. Implications for Plaintiffs' Theories of Harm

38. In sum, it is clear that all of these measures of League prosperity go in the same direction: steadily up since 1970 (other than occasional blips related to labor disputes), at the same time that sports wagering has grown dramatically.

39. These data pose a strong challenge to any theory of harm to the Leagues from legalization of sports wagering in New Jersey, as put forward by the Plaintiffs or otherwise. The reason for this conclusion is that if any purported theory of harm were valid, the dramatic increase in sports wagering over the last 40 years would have negatively impacted the Leagues in the forms asserted by the theories. But, there is no sign of such an effect in the data. For example:

- a. If sports wagering engendered concerns over match fixing on the part of fans, or caused fans to become "distracted" by wagering or match fixing, one would expect to see in the historical data corresponding adverse effects on the Leagues, which are, in fact, not seen in any of the measures that I have examined.
- b. If sports wagering were to lead to a short-term increase in interest, but a long-term decrease in interest due to adverse effects on the fans' "bonds of loyalty," 40 years would be sufficient to reach this purported "long-term" decline, but that is not seen in the data.

40. Thus, since no adverse effects have been seen from the massive increases in sports wagering over the last 40 years, no adverse effects can validly be expected from the net increase in sports wagering that might result from legalization in New Jersey.

**IV. WHILE WAGERING HAS GROWN DRAMATICALLY, THERE DOES NOT
APPEAR TO HAVE BEEN AN INCREASE IN REPORTED MATCH FIXING –
SUCH INCIDENTS HAVE REMAINED EXCEEDINGLY RARE**

41. In this section, I turn to match fixing. In particular, I review the incidents of match fixing that have occurred over the years, which shows the following key point: while sports wagering has increased dramatically (as shown in the prior section), there does not appear to have been a corresponding increase in the incidence of reported match fixing. In fact, incidents of match fixing have been exceedingly rare for many decades, and have been essentially non-existent in professional sports for nearly a century.⁵³

42. The facts lead to two conclusions regarding the Plaintiffs' theories of harm related to match fixing:

- a. No economic evidence supports the theory that the incidence of match fixing would increase as a result of the increased sports wagering (legal or overall) that might result from legalization in New Jersey.
- b. Furthermore, there is no basis in the history of match fixing (and the lack thereof) to support the Plaintiffs' claim that there would be increased perceptions of match fixing by fans, or increased fan concern or distraction related to match fixing, that would adversely affect the Leagues as a result of legalization in New Jersey,

A. Match Fixing in Professional Sports

43. Going back nearly a century, I find just two confirmed incidents of match fixing in United States professional sports, both of which occurred more than 60 years ago. I describe these incidents briefly below. I also discuss a third case – involving NBA referee Tim Donaghy – although a government investigation and an independent report commissioned by the NBA concluded that there is no evidence that this case involved match fixing (see further discussion

⁵³ I note that these are limited to cases involving match fixing; cases that involved wagering, but not match fixing, are not relevant here – see further discussion below.

below).⁵⁴

44. Perhaps the most (in)famous case of match fixing is the “Black Sox” scandal of 1919 in which eight members of the Chicago White Sox conspired to lose intentionally the World Series in exchange for payments from gamblers.⁵⁵ This incident occurred over 90 years ago, before the advent of legalized sports wagering. I am not aware of any match fixing incidents in MLB since that time. This is confirmed by MLB Commissioner Selig, who stated in his deposition in this matter that he is not aware of any match fixing incidents involving MLB since the Black Sox scandal.⁵⁶

45. The next case involved the National Football League (NFL) championship game of 1946 between the Chicago Bears and New York Giants. In that case, two players on the Giants were involved in a conspiracy aimed at adversely affecting the performance of their team in exchange for a payoff from gamblers.⁵⁷ This plot was actually uncovered prior to the start of the game, and one of the players was required to sit out the game, but one played (initially denying knowledge of the conspiracy). Given the pre-game discovery, it is not clear whether there was any impact on the outcome.⁵⁸ This incident involved only the two players and only the one game.

46. This incident occurred more than 65 years ago, before the advent of legalized sports wagering. I am not aware of any other match fixing cases involving the NFL since that time. The lack of incidents involving the NFL is supported by Lawrence P. Ferazani, Jr., member of the NFL legal department, who stated in his deposition in this case that “We [NFL]

⁵⁴ I note that my conclusions expressed herein are not dependent on whether or not the Donaghy incident involved match fixing – i.e., my conclusions expressed herein would be the same if I assumed that there was match fixing in the Donaghy case.

⁵⁵ See Davies and Abram (2001), pages 23-25.

⁵⁶ See Deposition of Allan H. Selig, November 9, 2012, pages 8-9.

⁵⁷ Davies and Abram (2001), page 101.

⁵⁸ Davies and Abram (2001), page 101.

believe there's been no match-fixing with regard to NFL games in the United States or anywhere else,” and he later said that the NFL has not had any match fixing incidents “going back decades.”⁵⁹

47. The third case involves NBA referee Tim Donaghy. This incident became public in July 2007.⁶⁰ Donaghy bet on games himself and also provided “tips” to others involved in sports wagering over several years, including games that he refereed.⁶¹ An independent study of this case commissioned by the NBA indicated that Donaghy bet on 30-40 games that he refereed each year from 2003-2004 through 2005-2006, and he provided tips on 16 games that he refereed in 2006-2007.⁶²

48. There is no evidence that the Donaghy case actually involved “match fixing,” i.e., manipulating the results of games:

- a. Donaghy claimed that he did not make calls to manipulate the outcome of games.⁶³
- b. The government investigation of this case did not find any evidence that Donaghy made calls to manipulate the results in favor of his bets or tips.⁶⁴
- c. An independent study commissioned by the NBA in 2008 was “unable to contradict the government’s conclusion” regarding the lack of evidence of manipulation.⁶⁵

49. In fact, the study commissioned by the NBA stated: “As Donaghy weighed the financial benefits and risks associated with making intentionally wrong calls, he may have

⁵⁹ Deposition of Lawrence L. Ferazani, Jr., November 5, 2012, page 70.

⁶⁰ See Newsday, “Tim Donaghy Timeline,” July 30, 2008.

⁶¹ See Pedowitz, Lawrence, B., “Report to the Board of Governors of the National Basketball Association,” Wachtell, Lipton, Rosen & Katz, October 1, 2008 (“Pedowitz (2008)”), pages 7-8.

⁶² See Pedowitz 2008, page 15.

⁶³ See Pedowitz 2008, page ES-3.

⁶⁴ See Pedowitz 2008, page ES-3.

⁶⁵ See Pedowitz 2008, page ES-3.

concluded that he was better off simply making betting picks (which would presumably be right more often than they were wrong, because they were based on confidential inside information), without making any intentional efforts to affect game outcomes.”⁶⁶

50. It appears that this was an isolated incident, not indicative of more widespread match fixing. NBA Commissioner David Stern called Donaghy a “rogue, isolated criminal.”⁶⁷ The study commissioned by the NBA concluded: “We have discovered no information suggesting that any NBA referee other than Tim Donaghy has bet on NBA games or leaked confidential NBA information to gamblers.”⁶⁸

51. Finally, I note that the NBA made certain changes to its rules and regulations related to officials that are “designed to bolster its anti-wagering efforts”⁶⁹ (see further discussion in Section VI).

52. In sum, with respect to professional sports, it is clear that match fixing has been exceedingly rare:

- a. No cases in MLB for over 90 years,⁷⁰
- b. No cases in the NFL for over 60 years, including no cases in the 45 years of the Super Bowl era (1967-present),⁷¹
- c. No confirmed cases in the NBA, and

⁶⁶ See Pedowitz 2008, page 21.

⁶⁷ NBA, “David Stern’s Donaghy news conference transcript,” July 24, 2007, transcript provided by the NBA, <http://sports.espn.go.com/nba/news/story?id=2947534>.

⁶⁸ See Pedowitz 2008, page ES-2.

⁶⁹ See Pedowitz 2008, pages ES-5 to ES-8.

⁷⁰ Note: there have been wagering-related incidents in the MLB, but those did not involve match fixing. Most prominent may be the Pete Rose case. Rose was found to have gambled on baseball games and he (eventually) admitted to betting on Reds’ games when he was the manager, but he claims to have never bet against the Reds and I am not aware of any evidence to the contrary. (See ESPN.com, “Rose admits to betting on Reds ‘every night,’” March 16, 2007, <http://sports.espn.go.com/mlb/news/story?id=2798498>.)

⁷¹ Note: again, there have been wagering-related incidents in the NFL, but not involving match fixing. For example, two NFL players – Packers’ Paul Hornung and Lions’ Alex Karras – were suspended for one year in 1963 for betting on their own games, but they did not bet against their own teams. Another prominent case involved quarterback Art Schlichter. (See Davies and Abram (2001), pages 110-111 and 147-148.)

d. No confirmed cases in the NHL.

53. Focusing on the period during which sports wagering has grown rapidly (beginning in the mid-1970s, as discussed in Section II), there is no evidence of any confirmed cases of match fixing in MLB, NBA, NFL, or NHL. In other words, the increase in legal sports wagering (or total legal and illegal sports wagering) has not led to an increase in match fixing in professional sports.

A. Match Fixing in College Sports

54. The following discussion of college sports focuses on the top divisions of the NCAA: Division I for basketball and the Football Bowl Subdivision (formerly Division I-A) in football, which are the primary revenue-generating divisions.

55. With respect to football, I have found only three incidents of match fixing during the period of legalized wagering in Nevada:

- a. Boston College (1996). In this case, 13 players were suspended for wagering on sports, with two of the players having bet against their own team. Those two players were not in a position to influence the outcome of the game on which they bet: one player was injured and the other was in the game for only one play. The two players only bet \$200-250, and no outside gamblers were part of the conspiracy.⁷² I have included this event because it involved players wagering against their own team.
- b. Northwestern (1998). Four Northwestern football players were indicted for wagering, with only one accused of wagering against his team. This player, a running back, intentionally fumbled the ball during a game in which he had

⁷² Boston Globe, "BC suspends 13 for gambling Says 2 players bet against own team," November 7, 1996.

placed a bet of \$400 against his own team with a local bookie.⁷³ No outside gamblers were part of the conspiracy in this case. At the time of this event, the NCAA indicated that it was not aware of any other match fixing incidents involving football.⁷⁴

- c. University of Toledo (2004-2005). Three football players were involved in point shaving, in exchange for payoffs from a gambler. It is notable that legal sportsbooks found abnormal wagering patterns, which contributed to catching the conspirators in this case.⁷⁵

56. Turning next to college basketball, there have been two episodes of widespread point shaving, both of which occurred more than 50 years ago, well before the massive increases in sports wagering:

- a. Circa 1950 incidents. This case was first reported in January 1951. It was centered around schools in the New York City area, including City College and Long Island University, although players at the University of Kentucky were also implicated. In total, 33 players at 7 schools were involved, with match fixing affecting 49 games.⁷⁶
- b. Circa 1960 incidents. The second widespread scandal emerged in 1961, ultimately reaching 49 players at 27 schools, with the match fixing affecting 67 games from 1957 through 1961.⁷⁷

57. There have not been any further widespread cases since the circa 1960 cases, a

⁷³ See Davies and Abram (2001), page 153.

⁷⁴ See New York Times, "4 Are Indicted in Northwestern Football Scandal," December 4, 1998.

⁷⁵ See Toledo Blade (Ohio), "Former UT player guilty in bribery; McDougle took gifts in point-shaving scheme," July 19, 2011; and Toledo Blade (Ohio), "UT scandal just keeps on going ...," July 20, 2011.

⁷⁶ See Davies and Abram (2001), pages 64-65.

⁷⁷ See Davies and Abram (2001), pages 103-104.

period of over 50 years, including the period in which sports wagering – legal and illegal – increased dramatically. Over this period, there have been six isolated incidents involving two to four players at individual schools⁷⁸:

- a. Boston College (1978). This case involved organized crime, with payoffs made to three players to shave points in nine games during the 1978-1979 season.⁷⁹
- b. Tulane (1985). Four players were involved in point shaving in two games, in exchange for payoffs from a gambler. Tulane subsequently dropped basketball for four years.⁸⁰
- c. Arizona State (1994). This incident involved two players, who received payoffs from gamblers to shave points in four games.⁸¹ It is notable that this case was first identified when casinos in Las Vegas found unusual wagering patterns.⁸²
- d. Northwestern (1995). This case involved two players shaving points in three games in exchange for payoffs from a gambler.⁸³
- e. University of Toledo (2005-2006). This case involved three basketball players receiving payoffs to shave points, with 17 games affected, although I understand that the investigation of this case is ongoing.⁸⁴
- f. University of San Diego (2010). This case appears to involve two players and an assistant coach being paid off in a point shaving scheme, with two games

⁷⁸ Varez Ward of Auburn is currently under investigation for shaving points in 2 games, but I am not aware of any confirmation of match fixing in this case (see Yahoo! Sports, "Sources: Auburn's Varez Ward at center of federal pointshaving probe," March 8, 2012).

⁷⁹ See New York Times, "Grand Jury Said to Open Inquiry on Point-Shaving," January 30, 1981; and New York Times, "Point Fixes Detailed by Informant," February 12, 1981.

⁸⁰ See New York Times, "2 More Arrests In Tulane Case," March 30, 1985; and New York Times, "A Long Road Back For Tulane and Coach," March 20, 1992.

⁸¹ See New York Times, "2 Admit Shaving Points at Arizona State in '94," December 6, 1997.

⁸² See USA Today, "Gambling Probe," November 25, 1997.

⁸³ See CNN.com, "A Stain on the Game, Another point-shaving scandal rocks college basketball," March 27, 1998.

⁸⁴ See ESPN.com, "Six ex-players charged with conspiracy," May 6, 2009; Deposition of Rachel Newman Baker, October 30, 2012 ("Baker Deposition"), page 63.

affected, although I understand that the investigation of this case is ongoing.⁸⁵

58. Thus, in the last 50 years, there have not been any match fixing incidents in college sports that even remotely approach those seen in 1951 and 1961, which occurred prior to the significant increases in sports wagering that began around 1970. The relatively infrequent events that have occurred have been isolated – i.e., limited to one school at a time. Furthermore, there is no discernible increase in match fixing in college sports associated with the dramatic rise in sports wagering since 1970.

B. Summary

59. In sum, the above review shows two key points. First, match fixing incidents are exceedingly rare. Second, there is no indication that the dramatic increase in legal and illegal sports wagering since 1970 has led to increased frequency of match fixing. As such, any theory of harm that is based on match fixing – actual or perceived – is unfounded. And any claim that legalizing sports wagering in New Jersey would cause fans to be increasingly concerned with or distracted by the potential for match fixing rests on unfounded assumptions about fans having unfounded perceptions.

V. THERE IS NO EVIDENCE THAT LEGALIZATION OF WAGERING IN NEW JERSEY WOULD INCREASE THE INCENTIVE OF ANY PARTIES TO ENGAGE IN MATCH FIXING

60. From an economic perspective, the incidence of match fixing is driven by the incentives for people to engage in such activities – i.e., there will be more (less) match fixing if match fixing becomes more (less) “profitable.”⁸⁶ As such, I examine the effect legalization of sports wagering in New Jersey would have on the “profitability” of match fixing (the meaning of “profitability” in this context is discussed below). It is important to emphasize that the relevant

⁸⁵ See New York Daily News, “USD Point-Shaving Scandal,” April 12, 2011; and Baker Deposition, pages 55-57.

⁸⁶ See Becker, G., “Crime and Punishment,” *Journal of Political Economy*, 76(2): 169-217 (1968); and Ehrlich, I. (1996), ‘Crime, Punishment and the Market for Offenses’, *Journal of Economic Perspectives*, 10(1), 43-67.

consideration here is not the overall effect of sports wagering on the Leagues or the effect of legalized sports wagering in general on the Leagues. Rather, it is the incremental effect of legalization in New Jersey, given the existence of overall sports wagering – both legal in Nevada and illegal.

61. I find that legalization of sports wagering in New Jersey will not increase the incentive for parties to engage in match fixing. This has two implications for the Plaintiffs' claims of harm in this case:

- a. There is no basis on which to conclude that the incidence of match fixing would increase following legalization in New Jersey.
- b. There is also no basis on which to conclude that fans' perceptions of or concerns about match fixing would increase following legalization in New Jersey.

A. Economic Framework for Assessing Effect on Incentives

62. In an economic framework, the decision to engage in criminal activity depends on four factors:

- a. Potential gain from a success,
- b. Adverse consequences of being caught,
- c. Probability of being caught, and
- d. Number of people in the pool of "potential match fixers."

63. In other words, the "profitability" of match fixing is equal to the gains from success minus the probability of being caught multiplied by the adverse consequences of being caught. In this context, "success" would be monetary gains, while "adverse consequences" would be loss of sports career/wages and possible jail time, etc. (Obviously, more complex "models" of criminal activity can be formulated, but this simple formulation is sufficient for

current purposes.) This type of framework has been applied to sports match fixing.⁸⁷

64. In this case, there are two relevant parties: the gambler and the game participant. The game participant could be a player, an official/referee, coach/manager, or anyone else with the ability to influence the outcome of a game. Of course, the “gambler” and the “game participant” may be the same person; i.e., if the game participant places the bets himself.⁸⁸

65. I now consider the effect that legalizing sports wagering would have on each of the four factors for the two types of participants. It is clear that there would be no effect on factor (b) above, the adverse consequences of being caught. So, the remainder of this section focuses on the three other factors. As discussed below, I find that legalization in New Jersey does not increase, and may actually reduce, the incentive to engage in match fixing.

B. Effect on Potential Gains from Match Fixing

66. The potential gains from match fixing are driven by the amount wagered and the probability of successfully influencing the outcome as intended. Legalization in New Jersey would not have any effect on the probability of executing the match fix because that depends on the participant’s ability to affect the outcome of the game. So, the remainder of this section focuses on the amount bet. (Note: the payoff for the game participant is the payoff from the gambler, not the bet itself (directly). However, the payoff from a gambler to a game participant would be driven by the potential gains from the wagering – i.e., the payoff amounts to an allocation of the gains between the parties.)

67. The question then is: Would legalization in New Jersey allow the gambler to bet more than he/she could otherwise? I find the answer to be “no” for the following reasons.

⁸⁷ See, Forrest, D. and Simmons, R., "Sport and Gambling," Oxford Review of Economic Policy, 19:598-611 (2003) (“Forrest and Simmons (2003)”).

⁸⁸ There may be multiple gamblers and game participants involved, but I use gambler and player (singular) herein for simplicity.

68. First, the gambler is most likely to make the wager in one of the illegal outlets – i.e., local bookmaker(s) or internet/offshore bookmakers.⁸⁹ Such channels have several advantages for the gambler, including:

- a. Anonymity. The illegal outlets will likely be more difficult for law enforcement to trace, thereby reducing the probability of being caught.
- b. Taxes. Illegal outlets make it easier for the gambler to avoid paying taxes on winnings. (Presumably, someone involved in match fixing would also be inclined toward tax evasion as well.)
- c. Credit. The illegal outlets commonly allow bets to be placed on credit, which would allow the gambler to wager more than the amount he/she has on hand.
- d. Monitoring. The illegal channels, particularly local bookmakers, do not have the monitoring systems in place that facilitate detection of unusual wagering patterns that could raise suspicions (see further discussion in next section).

As such, legalization in New Jersey would have no positive effect on the amount that the gambler could/would wager.

69. That leaves the case of a gambler who, notwithstanding the above, would use a legal outlet. While it is true that legalization in New Jersey would give the gambler more options than just having legal outlets in Nevada, I find that there is not any economic evidence to conclude that it would have a material impact on the amount wagered for the following reasons:

- a. There are already a sufficient number of outlets in Nevada. It is conceivable that the gambler may want to make bets at more than one location in order to reduce

⁸⁹ See Forrest and Simmons (2003), footnote 16 (“Corrupt sportsmen and those who induce others to cheat are more likely to use offshore bookmakers than the large domestic illegal sector, as bookmakers tend to be small-scale local monopolists with personal knowledge of their clients Strumpf (2003). The corrupt are likely to place their wagers where betting processes are more impersonal.”), page 608; and Davies and Abram (2001), page 155.

the likelihood of being detected, i.e., placing a number of smaller bets could be preferable to placing a single larger bet. However, there are currently 182 sportsbooks in Nevada.⁹⁰ Adding locations in New Jersey would not materially improve the ability to employ a bet spreading strategy. Furthermore, the number of legal sportsbooks in Nevada has grown from about a dozen or less in the early-to-mid 1970s to the current figure of more than 180, as discussed in Section II. If this purported ability to spread bets across multiple sportsbooks were important to the likelihood of match fixing, such an effect would have already been seen, but it has not (see Section III).

- b. In any case, the constraint on the amount to be bet may be the amount of money available to the gambler, not any consideration of avoiding detection and/or spreading bets across bookmakers. In such case, adding locations in New Jersey would have no incremental effect on the amount that could be bet.

70. Further, I note that legalization in New Jersey would not have a material effect on the cost of placing a legal bet. The cost of placing the bet is a negative component of the (net) potential gain – i.e., it offsets winnings from the wagering itself. However, the cost to the gambler of placing a bet in Nevada is not significant relative to the rest of the “transaction.” Although bets need to be made in person in Nevada, gamblers could have associates place bets for them in Nevada. So, regardless of where the gambler lived, the option of wagering in New Jersey would not materially reduce the costs or increase the potential gains from a legally placed bet.

- 71. There are a couple of other possibilities, neither of which provides a plausible

⁹⁰ State of Nevada, State Gaming Control Board, "Gaming Revenue Report," period ending September 30, 2012, <http://gaming.nv.gov/index.aspx?page=149>.

scenario for increasing the size of the bet:

- a. One possibility is that the presence of legal wagering in New Jersey would increase the amount that an illegal bookmaker would accept as a bet because it would give the bookmaker an additional option for “laying off” a large bet – i.e., reducing his/her exposure by wagering on the opposite side with another bookmaker. However, an illegal bookmaker in that situation could easily lay off the bet in Nevada because it is relatively low cost to do so and the illegal bookmaker would not be concerned about detection of match fixing, so there would be no need to spread bets across bookmakers in Nevada.
- b. The second possibility is that a gambler would place the bet in an illegal channel in the absence of legalization in New Jersey, but then switch to a legal channel with legalization in New Jersey. This scenario is improbable for the reasons articulated earlier and would not raise the potential size of the bet either. Furthermore, this strategy would likely increase the probability of detection, as discussed in the next section.

C. Effect on Probability of Detection

72. In this section, I address the third factor that affects incentives: probability of detection. The question here is: Would legalization in New Jersey reduce the probability of a match fix being detected? Again, there is no plausible scenario in which this would be the case. The arguments here are largely the same as in the prior section.

73. First, as discussed above, the most likely scenario would be for the gambler to make the bet through an illegal channel, with or without legalization in New Jersey. In that case, legalization in New Jersey clearly would not decrease the probability of detection. If anything, it

might increase the likelihood that the illegal bookmaker would lay off the bet at a legal outlet, thereby increasing the probability of detection.

74. Second, if the gambler were to use a legal outlet with or without legalization in New Jersey, then there would be no effect on the likelihood of detection for the reasons discussed above.

75. The third possibility is that the gambler would use an illegal outlet in the “but-for” world (absent legalization in New Jersey), but use a legal outlet with legalization. This could only lead to an increased likelihood of detection. For example, Forrest and Simmons state:

“A defense of Nevada sports books threatened with a bar on betting on college sports has been that some past point-shaving cases have come to light by sports books reporting instances of suspicious wagering activity to the sports and law-enforcement authorities.”⁹¹

76. This final point – legal wagering appears to facilitate detection of match fixing through identification of unusual wagering patterns – is discussed further in Section V.

D. Effect on Pool of Potential Match Fixers

77. The final question is: Would legalization in New Jersey increase the pool of people who would potentially engage in match fixing? There would clearly be no effect on the game participant side, since the game participants would be the same in either case. In the rest of this section, I address the gambler side.

78. The effect of legalization in New Jersey would not increase the number of people who would potentially engage in match fixing; it may, in fact, lead to a reduction in this pool:

- a. Legalization in New Jersey could draw some new people into sports wagering:
i.e., people who would gamble through legal outlets in New Jersey, but who

⁹¹ Forrest and Simmons (2003), page 608.

would not otherwise gamble on sports. However, such a person is exceedingly unlikely to be a potential match fixer. That is, someone who is unwilling to even gamble illegally, despite readily available opportunities to do so, is exceedingly unlikely to commit the much more serious crime of match fixing.

- b. Furthermore, as previously discussed, the cost of placing a legal wager in Nevada is relatively modest compared to the cost of the overall match fixing “transaction.” As such, someone interested in engaging in match fixing, but not willing to bet illegally would be able to bet legally in Nevada. Thus, legalization in New Jersey is highly unlikely to draw in someone new who is prone to match fixing.
- c. To the contrary, the effect of legalization in New Jersey would be largely to shift some of the wagering from illegal to legal outlets, which may reduce the involvement of criminals in sports wagering. That is, illegal sports wagering business would be less profitable with legalization in New Jersey than without. As such, this would tend to reduce the pool of potential match fixers.
- d. This is supported by the experience with state lotteries pushing criminals out of illegal numbers games and legalized off-track wagering on horseracing pushing out criminals from that business. (See further discussion in the next subsection regarding more widespread adoption of sports wagering in the United States.)

79. In sum, there is no evidence that legalization of sports wagering in New Jersey would materially shift any of the factors toward an increased incentive for parties to engage in match fixing and, if anything, it may reduce that incentive. As discussed, this belies any claim that legalization in New Jersey would lead to increased match fixing – actual or perceived.

VI. EVIDENCE THAT LEGALIZATION OF SPORTS WAGERING IN NEW JERSEY WILL BENEFIT THE LEAGUES

80. This section discusses evidence indicating that the Leagues would actually benefit from legalization of sports wagering in New Jersey. This consideration is important for the following reason: if, contrary to my findings and conclusions expressed in the prior sections, one accepts that the Leagues would be harmed by increased sports wagering resulting from legalization in New Jersey, that is not the end of the relevant analysis. Rather, one must also consider the benefits to the Leagues provided by such legalization. The Plaintiffs have not shown that the purported harm outweighs the benefits and, as such, there is no basis to conclude that the net effect on the Leagues would be negative.

81. Essentially, wagering enhances fan interest in a given sport – i.e., in economic terms, wagering and other forms of consumption (attendance, viewership) are complementary products. As such, an increase in wagering leads to increased demand for the League’s products, which directly benefits the Leagues. I discuss several lines of evidence for this, including fantasy sports and NCAA “March Madness” pools. In addition, the shifting of sports wagering from illegal to legal outlets resulting from legalization in New Jersey (as discussed in Section II) provides another benefit: enhanced detection of – and, hence, deterrence to – match fixing. Finally, I discuss the experience of the English Premier League, which provides further evidence of the benefits of legalized wagering for sports leagues.

A. Fantasy Sports

82. The growth of fantasy sports leagues in the United States provides evidence that legalized wagering in New Jersey would likely promote fan interest in the Leagues.⁹² Briefly,

⁹² It is estimated that fantasy sports is a \$5 billion industry (see Edelman, Mark, “A Short Treatise on Fantasy Sports and the Law: How America Regulates its New National Pastime,” *Journal of Sports and Entertainment Law*, Harvard Law School, Vol. 3 (2012), pages 1-53, at page 11).

fantasy sports generally operate as follows (using football as an example, but other sports leagues are similar)⁹³:

- a. A group of people get together to form a “league” in which each person is the “owner” of a team. Some fantasy leagues are free and others charge an “entry fee” to join the league.
- b. At the start of the season, the owners draft players from the pool of actual players in the NFL; each owner has a “fantasy” team in the sense that it is made up of real players who are actually on different teams (e.g., a fantasy team could consist of players from the Bears, Giants, Patriots, Eagles, etc.). Owners can then trade players among themselves throughout the season.
- c. Each week, fantasy teams play games against each other where the winner is determined by the actual statistics of the players on his/her fantasy team that week. Each player on the fantasy team scores points based on factors relevant for his position, e.g., a quarterback may score points based on touchdown passes, completion percentage, and passing yards gained, and lose points for interceptions, while a running back may score points for rushing and receiving yards gained, and lose points for fumbles, etc.
- d. Records are accumulated from week-to-week, with the winner determined at the end of the season, as in a “real” league. For leagues that charge an entry fee, there is a payoff to the league winner(s) based on a pre-determined formula (e.g., X% for first place, Y% for second place, etc.).
- e. All leagues have this same basic structure, but there are myriad differences in the

⁹³ See Bernhard, B. J., & Eade, V. H., “Gambling in a fantasy world: An exploratory study of rotisserie baseball games,” UNLV Gaming Research and Review Journal, 9 (2005), pages 29-42, (“Bernhard and Eade (2005)”), at pages 30-31.

details: e.g., number of teams, draft method, trading rules, point systems, entry fee and payoff formula, etc.

83. Thus, while fantasy leagues are a “fantasy” in the sense that the players don’t really own teams and the fantasy rosters do not match “real” rosters, the results of fantasy leagues are directly dependent on the play of real games. Fantasy wins and losses do not line up directly with real team wins and losses, but both are dependent on the performance of individual players.

84. Fantasy sports and sports wagering (“real-world” single-game) have much in common. For example,

- a. Both involve putting money at stake. Although many fantasy leagues are free, many have entry fees that are used to create a pot for payouts to the winner(s).⁹⁴
- b. Success in both involves a combination of skill and luck.⁹⁵
- c. The “skill” component in both involves knowledge of and research into the sport, league, and/or players (e.g., injuries are relevant to both).⁹⁶
- d. Both depend on what happens in real games.⁹⁷

85. Thus, sports wagering and fantasy sports have many common characteristics – basically, both are ways that fans can become more “invested” in the sports leagues. As such, one would expect the impact on the Leagues of fantasy sports participation and wagering participation to be related.

⁹⁴ See Bernhard and Eade (2005), page 37; Roy, D. P., & Goss, B. D., “A conceptual framework of influences on fantasy sports consumption,” *Marketing Management Journal*, 17 (2007), pages 96-108, at page 103; see, also, discussion of Yahoo! leagues below.

⁹⁵ See Farquhar, L. K., & Meeds, R., “Types of fantasy sport users and their motivations,” *Journal of Computer-Mediated Communication*, 12 (2007), pages 1208-1228; and Bernhard and Eade (2005), page 29.

⁹⁶ See Bernhard, B. J., & Eade, V. H., “Gambling in a fantasy world: An exploratory study of rotisserie baseball games,” *UNLV Gaming Research and Review Journal*, 9 (2005), pages 29-42, at pages 35-36; see, also, discussion below of “NFL Fantasy Live” program on NFL television network.

⁹⁷ See Bernhard, B. J., & Eade, V. H., “Gambling in a fantasy world: An exploratory study of rotisserie baseball games,” *UNLV Gaming Research and Review Journal*, 9 (2005), pages 29-42, at pages 30-31.

86. Moreover, there is empirical evidence that fantasy sports participation and fan interest and consumption of League products are complementary. For example,
- a. Nesbit and King examine the impact of fantasy sports participation on viewership of NFL and MLB games and find that “fantasy sports participation leads to an increase in the number of games watched on television and, therefore, acts as a complement to televised sporting events.”⁹⁸
 - b. Nesbit and King also find that “fantasy football participants are not only more likely to attend at least one game per year, but also that they attend between 0.22 and 0.57 more games per season.”⁹⁹
 - c. Dwyer and Drayer find that, “not only is fantasy football not negatively impacting fans’ attitudes toward their favorite team, but it also serves as a tool to increase television viewership, which should incentivize the NFL to promote fantasy football participation to its fans.”¹⁰⁰
 - d. Drayer, et al, find that “fantasy football participants utilized various media sources, specifically the Internet, television, cellular telephones, and a variety of print media, at much higher levels as a result of their interest and participation in fantasy football.”¹⁰¹
 - e. Mahan, et al, find that “[u]ltimately, playing fantasy sports appears to be a complementary activity for highly-involved sports fans.” Further, they find that

⁹⁸ See Nesbitt, Todd M., and Kerry A. King, “The Impact of Fantasy Sports on Television Viewership,” *Journal of Media Economics*, 23:24–41, 2010, page 24.

⁹⁹ See Nesbitt, Todd M., and Kerry A. King, “The Impact of Fantasy Football Participation on NFL Attendance,” *Atl Econ J* (2010) 38:95–108, page 95.

¹⁰⁰ See Dwyer, Brendan, and Joris Drayer, “Fantasy Sport Consumer Segmentation: An Investigation into the Differing Consumption Modes of Fantasy Football Participants,” *Sport Marketing Quarterly*, 2010, 19, 207-216, at page 215.

¹⁰¹ Drayer, Joris, Stephen L. Shapiro, Brendan Dwyer, Alan L. Morse, Joel White, “The effects of fantasy football participation on NFL consumption: A qualitative analysis,” *Sport Management Review* 13 (2010) 129–141, page 129.

fantasy sports players who play for money had a higher level of interest, greater enjoyment, and spent more on event tickets than fantasy sports players who did not play for money.¹⁰²

87. A study prepared by Copernicus for the NFL further confirms that fantasy football stimulates fan interest and benefits the league, for example:

“Clearly there is a relationship between playing fantasy football and fan avidity. What is not perfectly clear is whether bigger fans are more likely to play fantasy, playing fantasy increases fan avidity, or both... We can look at tenure as an indicator of causation ... If fantasy football increases fan avidity, we would expect to see fan avidity increase with the number of years that someone has played fantasy football... Based on this analysis, it appears that fantasy football is a significant driver of fan avidity. When asked directly, fantasy football players say they watch over 3 hours more per week as a result of playing fantasy football.”¹⁰³

88. Thus, the combination of factors discussed above – i.e., the similar characteristics of sports wagering and fantasy sports, and the fact that fantasy sports and consumption of League products are complementary – suggests that sports wagering and consumption of League products are also complementary; i.e., increased wagering promotes increased interest in the Leagues, which benefits the Leagues.

B. League Promotion of Fantasy Sports and Other Wagering-Related Games

89. It is notable that all four professional league plaintiffs actively promote fantasy

¹⁰² Mahan, J., Drayer, J., and Spavero, E., "Gambling and Fantasy: An Examination of the Influence of Money on Fan Attitudes and Behavior," *Sport Marketing Quarterly* 2012, 21, 159:169, page 168.

¹⁰³ Copernicus, "The Emerging Role of the Web for the NFL," Prepared for NFL.com, March 25, 2002, pages 52-54, 102.

sports and other wagering-like activities. MLB, the NBA, the NFL, and the NHL all sponsor their own fantasy sports leagues and, as discussed further below, other wagering-like games in which their fans can participate. For the most part, the professional leagues do not earn any direct revenue from these activities – i.e., they are free for participants and there is no monetary wagering.¹⁰⁴ This would suggest that the fantasy leagues must have other benefits for the leagues – i.e., increase overall fan interest – given that there is some cost involved in setting up and running the leagues. I summarize each league's activities in this area below.

90. The NFL promotes an extensive array of fantasy and other wagering-like activities, including:

- a. The NFL operates a fantasy football league on its website, which is free for participants.¹⁰⁵ There are also links to the NFL fantasy football league on NFL individual team websites.¹⁰⁶ In addition, the NFL has a separate weekly fantasy game that offers a \$1 million prize.¹⁰⁷ Finally, I note that the NFL even has a separate fantasy football game that is aimed specifically at kids.¹⁰⁸
- b. The NFL also has a fantasy-related game that is based on its Thursday night game each week. This game is described as follows:

“Introducing NFL Fantasy TNF Challenge, the exclusive Thursday Night Football game from the NFL. Pick the game score and players from each matchup you think will score the most fantasy points each week. Earn

¹⁰⁴ One exception is that the NBA co-sponsors a fantasy league in which money is wagered – see further discussion below.

¹⁰⁵ See <http://www.nfl.com/fantasyfootball>.

¹⁰⁶ See <http://49ers.fantasy.nfl.com/>.

¹⁰⁷ See “NFL Perfect Challenge,” http://challengegames.nfl.com/perfectchallenge?icampaign=Perfect_Fantasy_othergames&cvsorc=fantasy.perfect.othergames. (Note: most fantasy leagues for an entire season, so this provides a way for fans to participate even if they missed the start of the season.)

¹⁰⁸ See “NFLRUSH Fantasy,” http://fantasy.nflrush.com/rush?campaign=FANTASY12_NFLCOM_FANTASY_OTHERGAMES.

points and compete with friends and experts, with a chance to win the Grand Prize trip to the Pro Bowl. It's fast and easy to play, so sign up, today!"

This challenge is particularly notable because it involves picking the score of the single game (akin to single-game wagering), not just individual players for fantasy points, as in a fantasy league.

- c. The NFL television network has a regular fantasy football program called "NFL FANTASY LIVE." The description of that program from the NFL website is as follows:

"NFL.com fantasy experts discuss all the latest news, injuries, matchups and their fantasy impact. Get all the tools you need to dominate your fantasy matchup with the insiders' expertise and exclusive NFL video."¹⁰⁹

- d. Notably, much of this same information – e.g., injury reports, expert opinions on matchups, etc. – would be of interest to people who gamble on NFL games (not just fantasy football players).
- e. Finally, the NFL also has a parlay card program on its website called "NFL Weekly Pick 'Em."¹¹⁰ Such parlay cards allow users to pick the winners of NFL games each week, with the results cumulated and ranked as the season progresses. The NFL website parlay cards are similar to parlay cards that someone might play in Nevada, although the NFL website game does not have point spreads or a monetary wager.

¹⁰⁹ See <http://www.nfl.com/nflnetwork/networkschedule>.

¹¹⁰ See http://challengegames.nfl.com/pickem?icampaign=PickEm_Fantasy_othergames&cvsorc=fantasy.pickem.othergames

91. Turning next to baseball, MLB offers a whole host of fantasy and wagering-like activities:

- a. MLB has its own fantasy league, which is free to participants.¹¹¹ MLB also co-sponsors a fantasy league with CBS Sports in which a group of participants pay a fee to set-up and run a league among themselves.¹¹²
- b. “Beat the Streak” is a game that involves picking players who will get a hit each day, with a chance to win \$5.6 Million by picking correctly for 57 consecutive games.¹¹³
- c. “Million\$ Pick ‘Em” is essentially a parlay card, involving picking winners each game on Tuesdays and Fridays, with a chance to win \$1,000 for the top scorer each week and \$1 Million for a perfect week.¹¹⁴
- d. “MLB Odyssey” also involves picking individual game winners. Fans can participate in public leagues or set up their own private league.¹¹⁵

92. The NBA co-sponsors a fantasy league with Yahoo!, which can be accessed from the NBA website,¹¹⁶ and the NBA logo appears on the Yahoo! fantasy basketball website.¹¹⁷ This fantasy league is particularly notable because there is a “Pro League” that has the following features¹¹⁸:

- a. Participants pay an entry fee of \$20 or \$100 to join a league with 12 people.
- b. The top three places receive payoffs, but the total payout is less than the total

¹¹¹ See <http://mlb.mlb.com/mlb/fantasy/fb/info/index.jsp>.

¹¹² See http://baseball.cbssports.com/splash/baseball/spln/mgmt/mlb?ttag=FBB12_mlb_215_v2.

¹¹³ See http://mlb.mlb.com/mlb/fantasy/bts/y2012/splash_index.jsp (this is based on Jo DiMaggio’s famous 56-game hitting streak record.)

¹¹⁴ See http://mlb.mlb.com/mlb/fantasy/pickem/y2012/splash_index.jsp.

¹¹⁵ See <http://mlb.mlb.com/mlb/fantasy/odyssey/index.jsp>.

¹¹⁶ See <http://www.nba.com/fantasy/>.

¹¹⁷ See <http://basketball.fantasysports.yahoo.com/nba/signup>.

¹¹⁸ See <http://basketball.fantasysports.yahoo.com/nba/proleagues>

entry fee, i.e., a portion of the entry fee (8.3%) is kept by the administrator (Yahoo!).¹¹⁹

- c. Participants play against other people they don't know (i.e., it's a public league).¹²⁰

93. The NHL website also has a link to Yahoo! fantasy hockey page,¹²¹ which includes \$20 and \$100 pro leagues like the NBA.¹²²

94. In sum, all of the professional leagues actively promote these “wagering-like” games. This suggests that the leagues view these activities as complementary to the other products they sell; i.e., they increase demand for the other products. Furthermore, in the case of the NBA-Yahoo! fantasy league, fans actually wager money (against unknown competitors with the league sponsor taking a portion of the wager as revenue). This essentially amounts to wagering. And, in the case of the NFL, it sponsors “challenges” that involve picking winners of individual games. All of this suggests that legalized wagering in New Jersey would have the same effect – i.e., lead to increased demand for league products.

C. NCAA March Madness Pools

95. I next turn to the NCAA's post-season Division I basketball championship tournament – now commonly known as March Madness. Fan interest in this event has been enhanced by the growth of tournament pools (or “brackets”). These pools often involve wagering, albeit generally a relatively modest amount in most “office pools.”¹²³ Participation in such pools both: (a) draws fans into the tournament who would otherwise likely have little

¹¹⁹ In the \$20 league, the payouts total \$220 (\$100/70/30 for 1/2/3 place), whereas entry fees total \$240; in the \$100 league, the total payout is \$1,100 (\$600/360/140) out of \$1,200 collected.

¹²⁰ See <http://basketball.fantasysports.yahoo.com/nba/proleagues>.

¹²¹ See <http://www.nhl.com/ice/eventhome.htm?location=/fantasy>. Note: the NHL is currently shut down due to a labor dispute, so full information on the fantasy programs is not available.

¹²² See <http://hockey.fantasysports.yahoo.com/hockey/proleagues>. Note: in contrast to the NBA, the NHL logo does not appear on the Yahoo! fantasy hockey website.

¹²³ I understand that these pools are often illegal, although that's not necessarily widely enforced.

interest, and (b) enhances interest of “regular” fans. This leads to increased viewership, particularly in early round games, which benefits the NCAA (e.g., leads to higher broadcast fees).

96. For example, a trade press article from 2008 states the following, quoting a broadcaster (CBS) and advertiser (State Farm):

“‘People who usually may not watch a college basketball game become viewers,’ said John Bogusz, evp-sports sales and marketing at CBS. ‘An audience [of more than 130 million] is very attractive to advertisers. And the number [of viewers] is growing because we are expanding not just the platforms, but the quality of the way we are presenting the games to people...’ Why so much interest from non-hoops fans? ‘It’s all about “bracketology,”’ said Mark Gibson, assistant vp-advertising at State Farm, Bloomington, Ill., citing the process in which people vie against family, friends and co-workers to predict which of 65 teams will reach the Final Four. In other words, an ‘office pool’ for the event called “March Madness.”¹²⁴

97. For the 2008 tournament, CBSSports.com developed an “official” (i.e., NCAA-sanctioned) March Madness application for Facebook.¹²⁵ In conjunction with the announcement of the app, an NCAA representative stated the following:

“Getting as many people involved in March Madness in as many different ways as possible is obviously an important goal for the NCAA and tapping into a base of very active NCAA sports fans with this application clearly furthers that objective,” said Greg Shaheen, Senior Vice President for Basketball and Business

¹²⁴ See Brandweek, “Marketers Go Crazy For ‘March Madness,’” March 16, 2008.

¹²⁵ See Dow Jones Wireless News, “CBSSports.com Teams with Facebook to Provide Official NCAA Tournament Brackets,” February 11, 2008.

Strategies at the NCAA. "Whether it be the television coverage of the tournament on CBS Sports and CSTV, streaming live video from the Emmy award-winning March Madness on Demand on NCAA.com, mobile coverage and highlights on mobile.CBSSports.com or the tournament brackets application on Facebook, more fans now have more ways to view, follow and enjoy March Madness than ever before. The application provides a convenient way to follow the championship for the conversation and enjoyment it brings to millions around the world."¹²⁶

98. The NCAA also has a March Madness Bracket Challenge on its website, sponsored by Capital One in 2012.¹²⁷ And, the NCAA has links to other March Madness bracket games on its website.¹²⁸ One of these – CBSSports.com online bracket program –allows groups of fans to set up to compete against each other.¹²⁹ This feature may be used by groups to set up and manage private bracket games that involve wagering (e.g., office pools).

99. Thus, March Madness brackets, many of which involve monetary fees and rewards, are wagering-like programs (if not where money is wagered outright). And, this activity clearly stimulates interest in the NCAA tournament. One would expect legalized wagering in New Jersey to have analogous effects.

D. English Premier League

100. The English Premier League ("EPL") was formed in 1992,¹³⁰ and experienced tremendous growth in popularity in the past 20 years. For example:

¹²⁶ See Dow Jones Wireless News, "CBSSports.com Teams with Facebook to Provide Official NCAA Tournament Brackets," February 11, 2008.

¹²⁷ See <http://bracketchallenge.ncaa.com/login>.

¹²⁸ See <http://www.ncaa.com/interactive-bracket/basketball-men/d1/2012>.

¹²⁹ See <http://mayhem.cbssports.com/splash/mayhem/spln/opm>.

¹³⁰ See <http://www.premierleague.com/content/premierleague/en-gb/about/history.html>.

- a. Live attendance increased from 9.75 million in the first year to 13.4 million in 2010-2011.¹³¹
- b. It is now the most watched soccer league in the world – broadcast in 212 countries with a viewing audience of 4.7 billion people.¹³²
- c. Current annual worldwide broadcast rights fees are £1.2 billion (about US\$1.9 billion)

101. At the same time, wagering on the English Premier League has been legal in the UK.¹³³ In fact, EPL teams have embraced wagering, for example:

- a. Teams are sponsored by bookmakers.¹³⁴
- b. Team websites provide direct links to sportsbooks and other wagering sites.¹³⁵
- c. Teams allow bookmakers to operate in stadiums.¹³⁶

It is also notable that some EPL teams are owned by Americans who also simultaneously own one or more teams in the United States professional sports leagues.¹³⁷

102. Thus, the EPL experience not only runs counter to the Plaintiffs' claim that association with wagering would harm the United States Leagues, but it also indicates that such relationships provide benefits.

E. Improved Detection of Match Fixing

103. Finally, as discussed in the prior section, I note that legalization of wagering in

¹³¹ See <http://www.premierleague.com/en-gb/about/a-growing-fan-base/>.

¹³² See <http://www.premierleague.com/en-gb/about/the-worlds-most-watched-league.html>.

¹³³ See "Gambling Review Report," Presented to Parliament by the Secretary of State for Culture, Media and Sport by command of Her Majesty, July 2001, page 12 (Betting and Gaming Act of 1960 authorized bookmakers).

¹³⁴ See <http://avidalmoreno.hubpages.com/hub/The-Betting-Industry-is-Rising-Sponsorship-in-Premier-League> (bwin is sponsor of Manchester United); and <http://www.avfc.co.uk/page/PartnerDescription/0,,10265~2384486.00.html> (Genting Casinos is the main shirt sponsor of Ashton Villa).

¹³⁵ See <http://www.betting.manutd.com/> (Manchester United); and <http://www.liverpoolfc.com/betting> (Liverpool).

¹³⁶ See <http://www.sportsbettingworld.com/home/premier-league-betting/>.

¹³⁷ For example, Stan Kroenke owns the Arsenal in the EPL, the Denver Nuggets (NBA), Colorado Avalanche (NHL), and St. Louis Rams (NFL) (see <http://www.forbes.com/profile/stanley-kroenke/>).

New Jersey may have the benefit of enhancing the Leagues' ability to identify fixing incidents, thereby reducing the likelihood of such incidents.

104. Prima facie evidence that legal bookmakers can facilitate detection/deterrence of match fixing is the fact that the Leagues themselves work with (legal) bookmakers in Nevada, as discussed below.

105. For example, the study commissioned by the NBA following the Donaghy incident states the following:

“The League [NBA] has now arranged to obtain information on a regular basis from individuals and entities involved in the wagering business who can provide the League with information about unusual movements in the wagering lines, rumors about things such as injury reports or referee schedules or where the ‘smart money’ is being wagered. By flagging games or individuals for the League to investigate, these monitors may help the League detect wagering or misuse of confidential information. (We note that this system has been working properly, as certain games were brought to the League’s attention during the 2007-2008 season. After further review, the League determined that nothing improper had occurred.”¹³⁸

106. Rachel Newman Baker, NCAA managing director of enforcement, stated the following in her deposition in this case:

“Q. Does the NCAA rely on sports wagering operators in Las Vegas to identify potential instances of match fixing?

A. We don't rely on that, no, but we have had conversations with them before when they have spotted information that they believe could be a possible point shaving issue.

¹³⁸ See Pedowitz 2008, page 113.

Q. So you have had discussions with sports wagering operators in Las Vegas initiated by those sports operators?

A. Yes.”¹³⁹

“Q. So was that a yes? Let me ask the question again just to make sure. Did sports wagering operators in Nevada help the NCAA monitor point spreads?

A. Yes, they have.”¹⁴⁰

Ms. Baker also said that the NCAA reestablished its relationship with Las Vegas in 2004-2005.¹⁴¹

107. In comments regarding the recent University of San Diego Case, NCAA vice president of enforcement Julie Roe Lach acknowledged the following:

“Lach acknowledged that the NCAA has "relationships" with people in Las Vegas who contact the governing body when there are unusual betting patterns. Typically, for college basketball games, that involves a three-point swing once the opening line is established, she said. ‘They help us monitor the lines so that if something doesn't look right, we flag it,’ Lach said. ‘I'd say that happens not more than once a year, and most times, it's where a line moved and there's an explanation that doesn't involve point-shaving.’”¹⁴²

108. At a basic economic level, legal bookmakers in New Jersey will have an incentive to deter and detect match fixing in order to preserve the viability of their business. For example:

“The fact is, however, that legal bookmakers have an economic interest in fair results in sporting contests and have proven to be effective in helping root out

¹³⁹ Baker Deposition, pages 66-68.

¹⁴⁰ Baker Deposition, page 146.

¹⁴¹ Baker Deposition, pages 203-206.

¹⁴² See Dow Jones News Service, "NCAA To Look At San Diego Case When FBI Finishes," April 13, 2011.

corruption when it has occurred. One example is the Arizona State University point-shaving scandal of 1993-1994, in which members of the men's basketball team collaborated with organized crime figures and purposefully missed free throws to avoid covering the point spread. Nevada bookmakers 'discovered that the betting pattern on Arizona State games changed tremendously, [and] they alerted the FBI.' In addition, when the casinos noticed that '\$250,000 in bets caused the line to drop to three points,' for a game between Arizona State and the University of Washington, they 'suspended betting on the game.'"¹⁴³ [footnotes omitted]

VII. CONCLUDING REMARKS

109. Sports wagering has been legal in Nevada for over 50 years and will continue to be legal regardless of what happens in New Jersey. Illegal sports wagering, which dwarfs legal sports wagering, will continue to exist regardless of what happens in New Jersey. As such, the pertinent question here is not the overall effect of sports wagering – legal and/or illegal – on the Leagues, but rather it is the incremental effect of legalization in New Jersey, given what exists and will continue to exist in the rest of the country with or without legalization in New Jersey.

110. I have examined that question from several different economic perspectives, all of which have led to the same conclusion: there is no evidence to support any of the Plaintiffs' theories that legalization in New Jersey will harm the Leagues. Specifically,

- a. First, I have shown that sports wagering has grown dramatically since 1970 – both legal and illegal. Yet, at the same time, the Leagues have prospered – grown in number of teams, attendance, revenue, and value. This strongly challenges any

¹⁴³ Galasso, Anthony G. Jr., "Betting against the House (and Senate): The Case for Legal, State-Sponsored Sports Wagering in a Post-PASPA World," Kentucky Law Journal, vol. 99 (2010-2011), pages 163-182, pages 177-178.

claim that incremental growth in sports wagering – legal and/or total – resulting from legalization in New Jersey would harm the leagues under the theories of harm put forth by the Leagues or otherwise.

- b. Second, I have examined match fixing, a specific mechanism underlying much of the theories of harm put forth by the Leagues. Here again, I examine what happened during the period in which sports wagering grew significantly. This examination shows that match fixing has been extremely rare in the last 50 years – essentially non-existent in professional sports and limited to a few isolated incidents in college sports. And, the growth in sports wagering has not led to any discernible growth in match fixing. As such, the evidence does not support the Plaintiffs’ theories that incremental sports wagering arising out of legalization in New Jersey would lead to an increase in actual or perceived match fixing.
- c. Third, I have examined how the economic incentives for parties to engage in match fixing would be affected by legalization in New Jersey. I find that the incremental effect of legalization in New Jersey would not increase, and may decrease, the incentives for match fixing.
- d. Fourth, I find that, given the above, there is no basis to conclude that legalization in New Jersey would increase fans’ perceptions of or concern over match fixing. There is no basis on which to presume that fans would adopt such a view where the available evidence points in the opposite direction.
- e. Finally, I have found that the leagues themselves promote a number of wagering-like activities – fantasy leagues, parlay games, and pools – that have many of the characteristics that legal wagering in New Jersey would have. This suggests that

legalized wagering in New Jersey would benefit the Leagues. And, the Leagues have not shown that their claimed harms would outweigh such benefits.

A handwritten signature in black ink that reads "Robert Willig". The signature is written in a cursive style with a large, stylized 'R' and 'W'.

Robert D. Willig

List of Exhibits

II-A-1: Legal Sports Wagering in Nevada – Total Volume and #Sportsbooks

II-A-2: Legal Sports Wagering Volume in Nevada – Mix by Sport

II-A-3: Estimates of Illegal Sports Wagering Volume

Sources for Exhibits II-A-1 and II-A-3

III-A-1: Professional Leagues – Number of Teams

III-A-2: Professional Leagues – Team Value – Aggregate (A) and per Team (B)

III-A-3: Professional Leagues – Attendance – Aggregate (A), per Team (B), and per Game (C)

III-A-4: Professional Leagues – Total Revenue – Aggregate (A) and per Team (B)

III-A-5: Professional Leagues – Broadcast Revenue – Aggregate (A) and per Team (B)

Sources for Exhibits III-A-1 through III-A-5

III-B-1: NCAA – Number of Division I Basketball and Division I-A/FBS Football Teams

III-B-2: NCAA – Basketball Media Rights Revenue

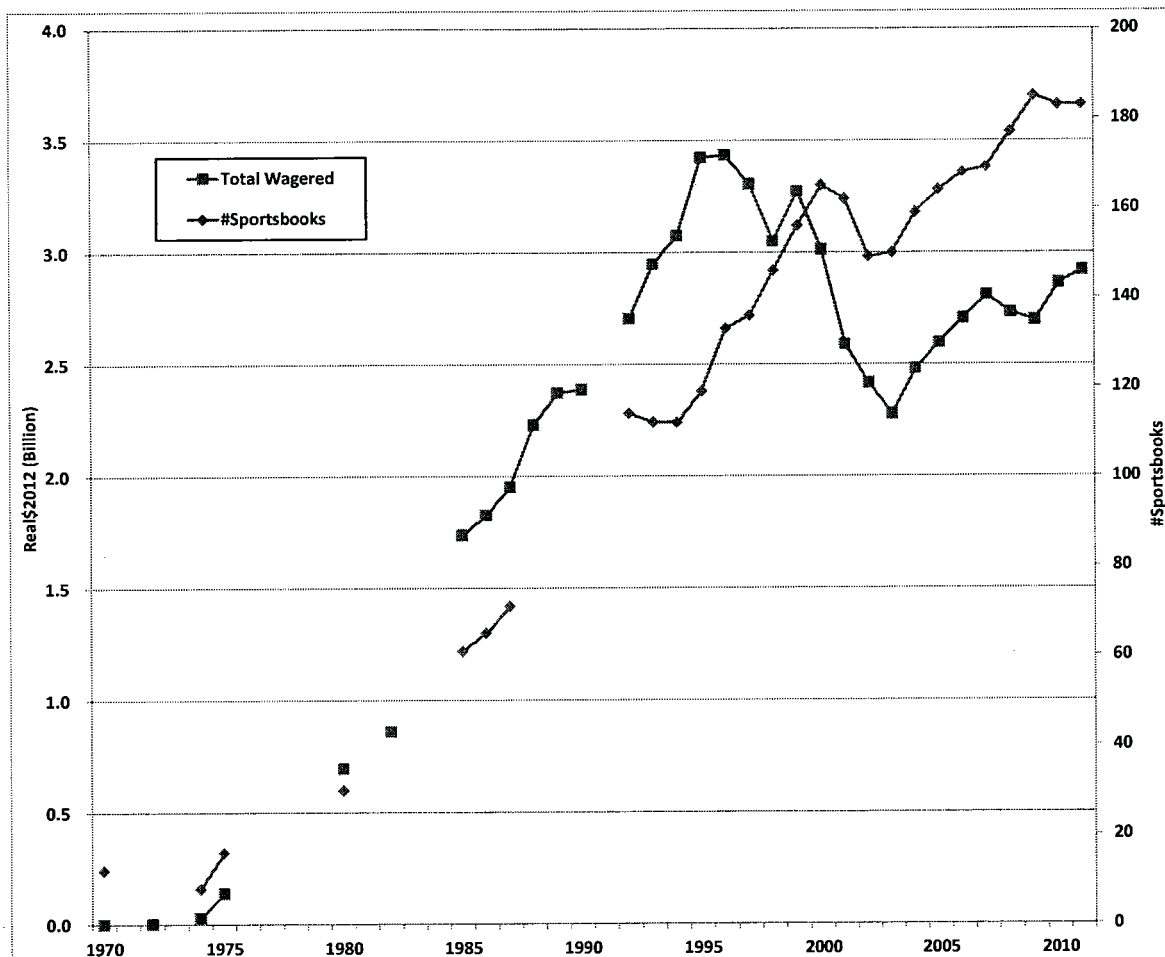
III-B-3: NCAA – Number of Football Bowl Games

III-B-4: NCAA – Football Bowl Game Payout – Aggregate and Per Game

Sources for Exhibits III-B-1 through III-B-4

EXHIBIT II-A-1

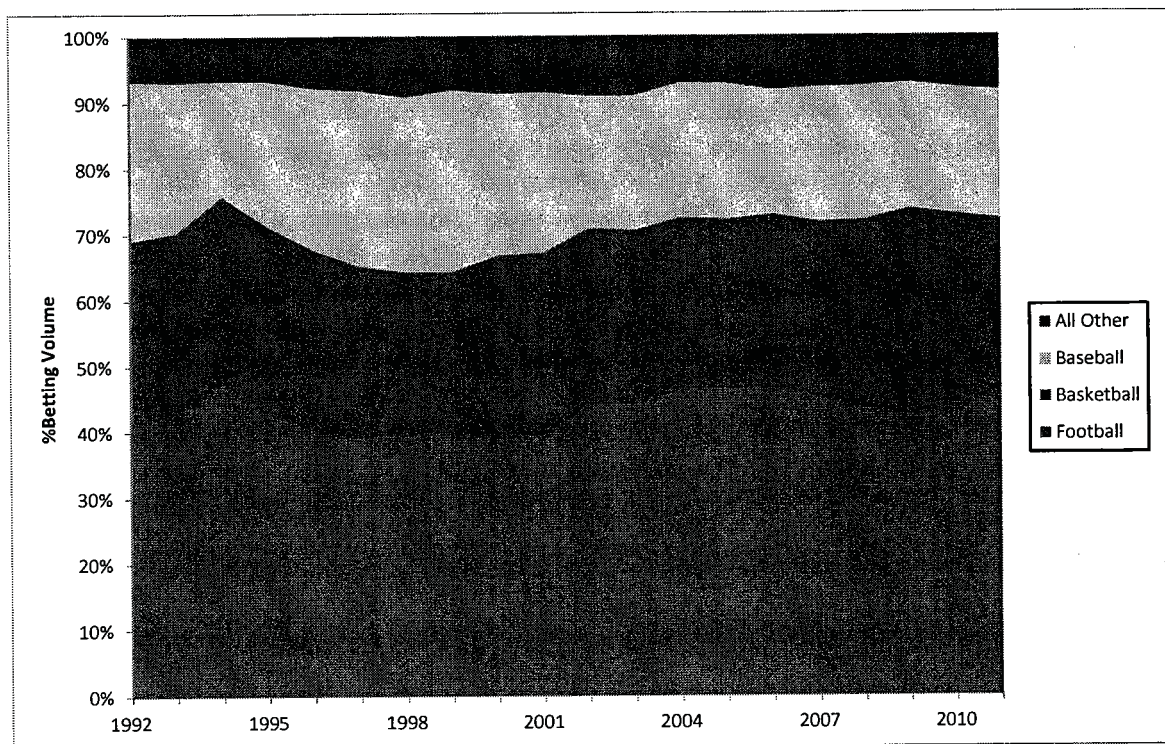
Legal Sports Wagering in Nevada – Total Volume and #Sportsbooks



Source: see Sources for Exhibits II-A-1 and II-A-3

EXHIBIT II-A-2

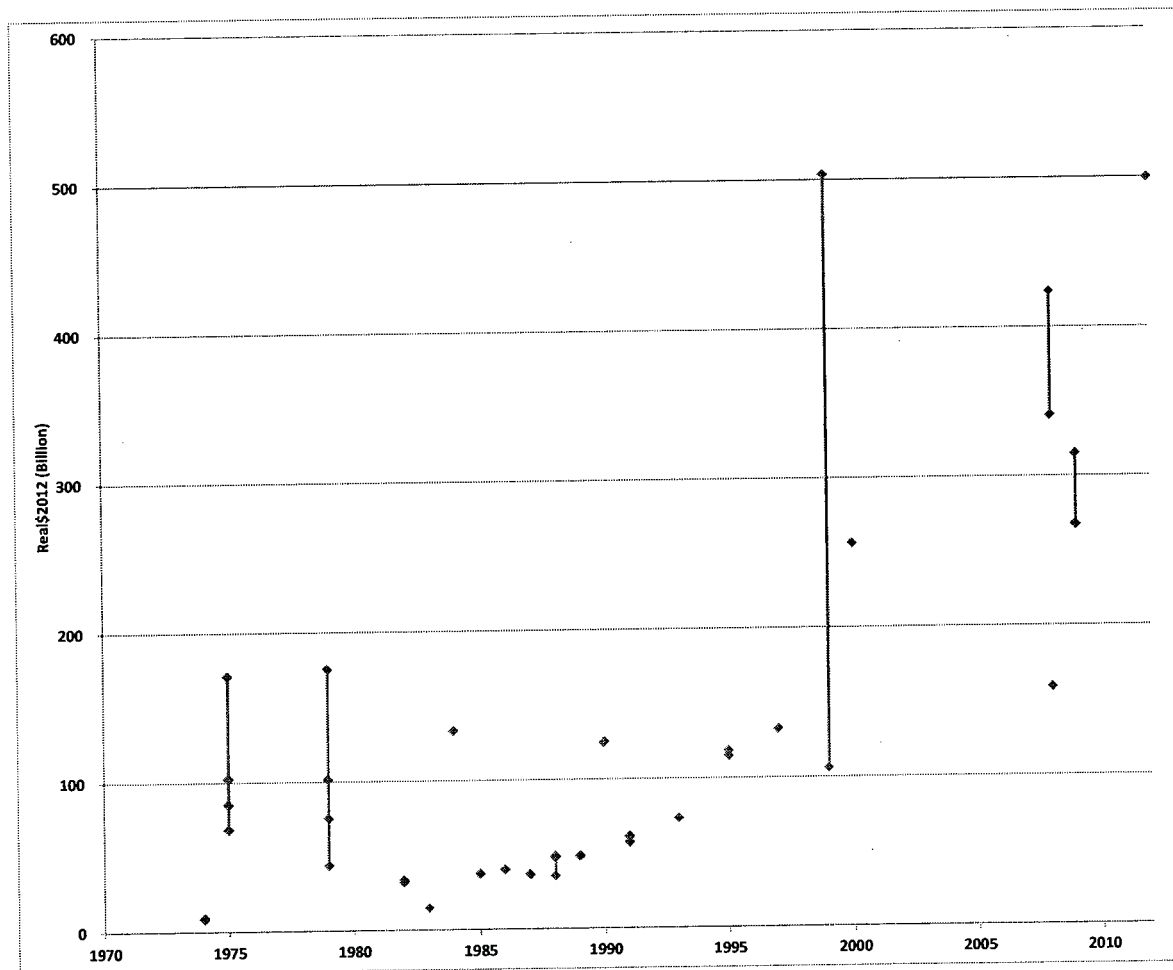
Legal Sports Wagering Volume in Nevada – Mix by Sport



Source: State of Nevada, State Gaming Control Board, "Gaming Revenue Report," 1992-2011

EXHIBIT II-A-3

Estimates of Illegal Sports Wagering Volume



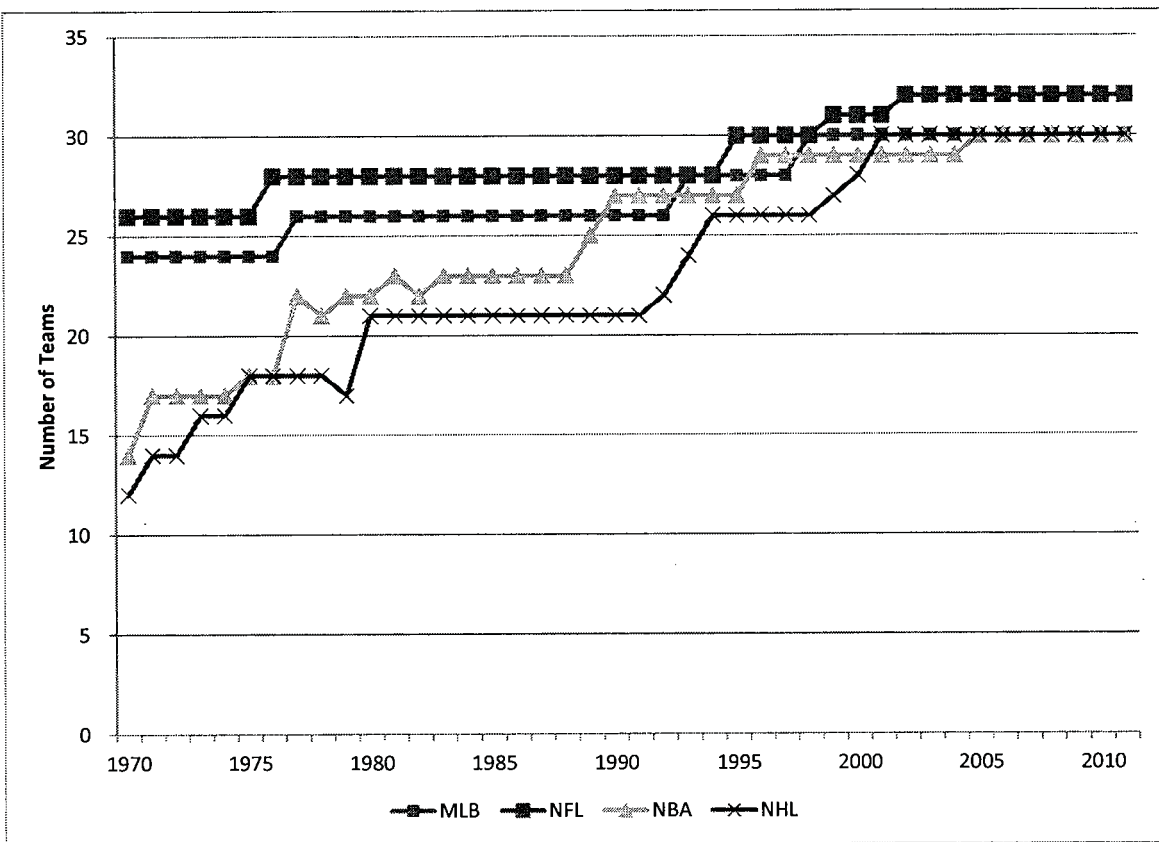
Source: see Sources for Exhibits II-A-1 and II-A-3

Sources of Exhibits II-A-1 and II-A-3

- (a) State of Nevada, State Gaming Control Board, "Gaming Revenue Report," years ending 1992-2011
- (b) Strumpf, K Coleman S., "Illegal Sports Bookmakers," Department of Economics University of North Carolina at Chapel Hill, February 2003
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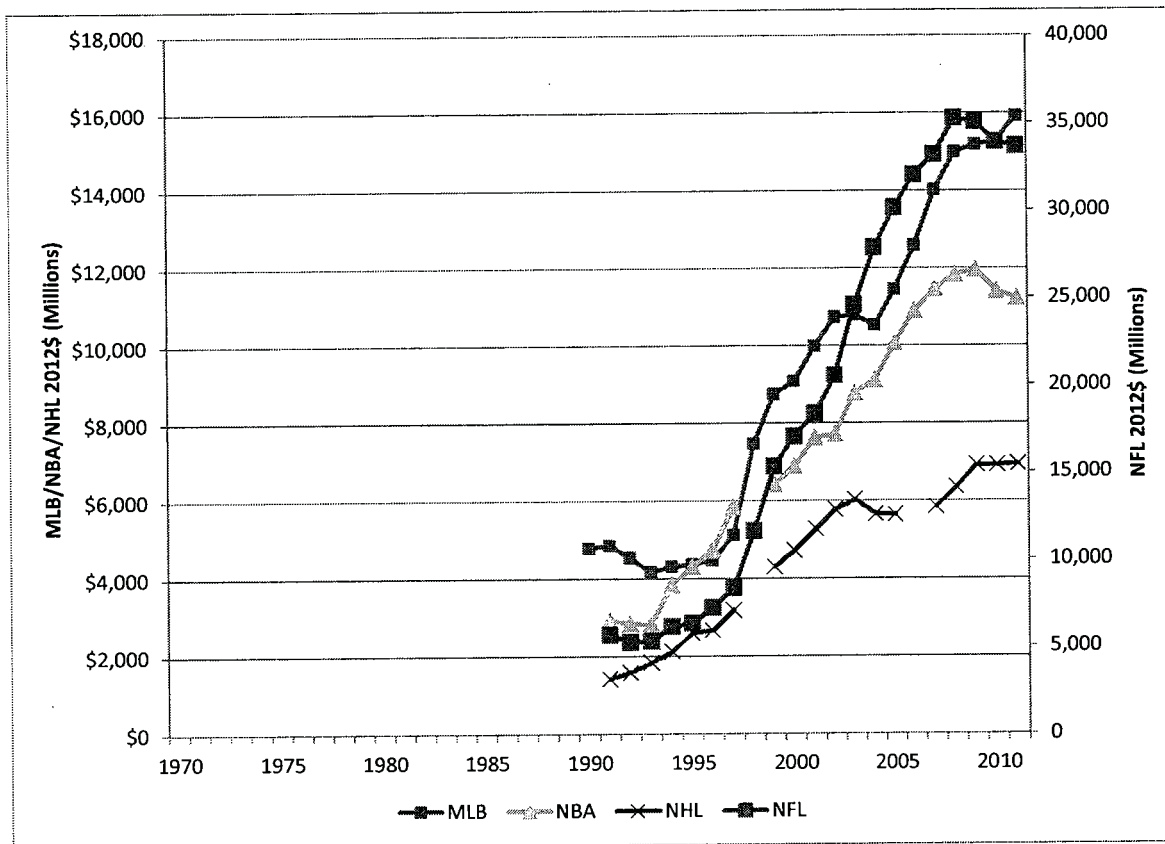
EXHIBIT III-A-1

Professional Leagues – Number of Teams



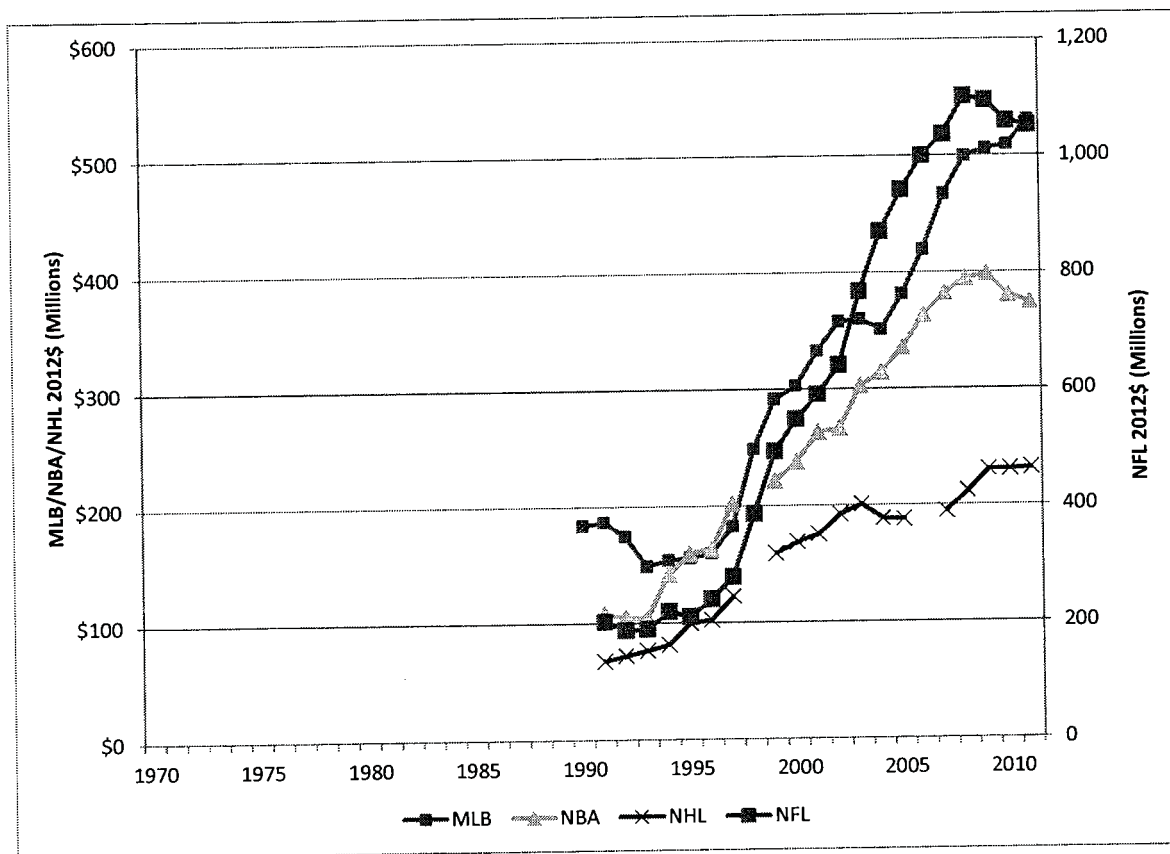
Source: see Sources for Exhibits III-A-1 through III-A-5

EXHIBIT III-A-2A **Professional Leagues – Team Value – Aggregate**



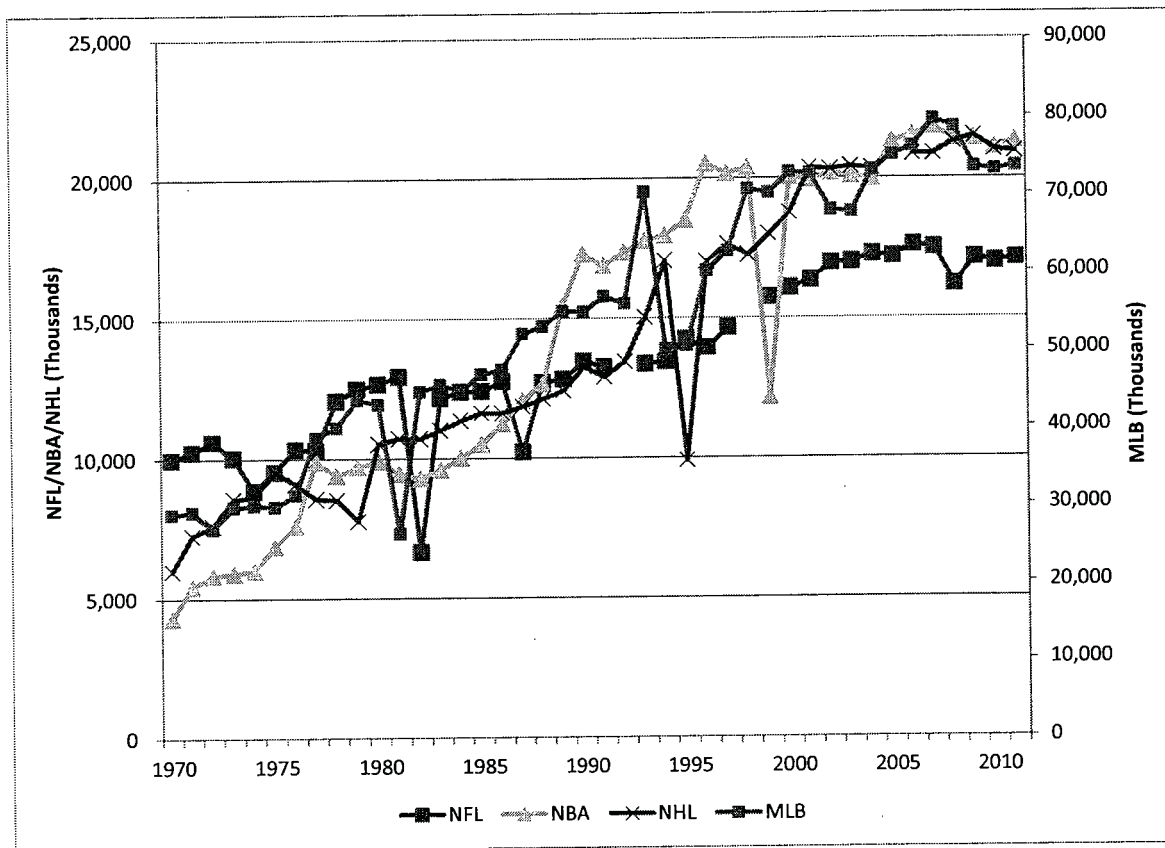
Source: see Sources for Exhibits III-A-1 through III-A-5

EXHIBIT III-A-2B **Professional Leagues – Team Value – Per Team**



Source: see Sources for Exhibits III-A-1 through III-A-5

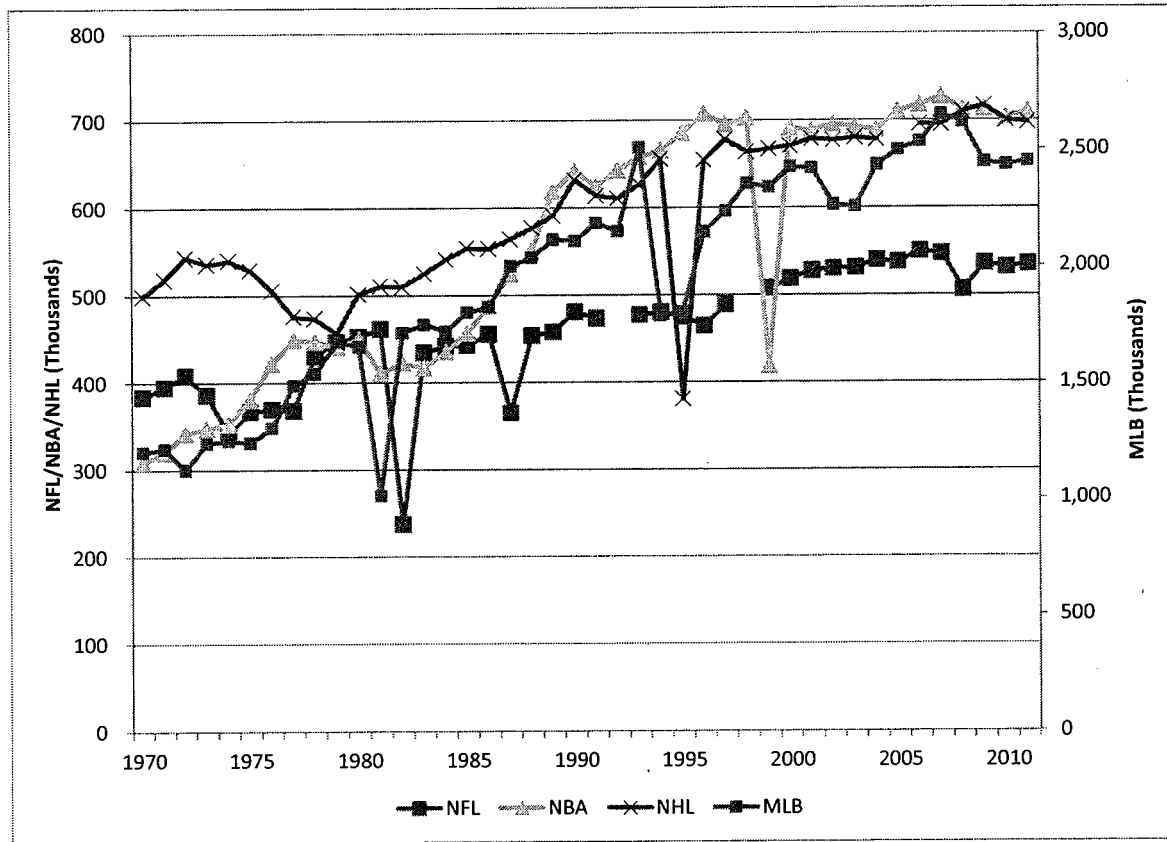
Exhibit III-A-3A
Professional Leagues – Attendance – Aggregate



Source: see Sources for Exhibits III-A-1 through III-A-5

Exhibit III-A-3B

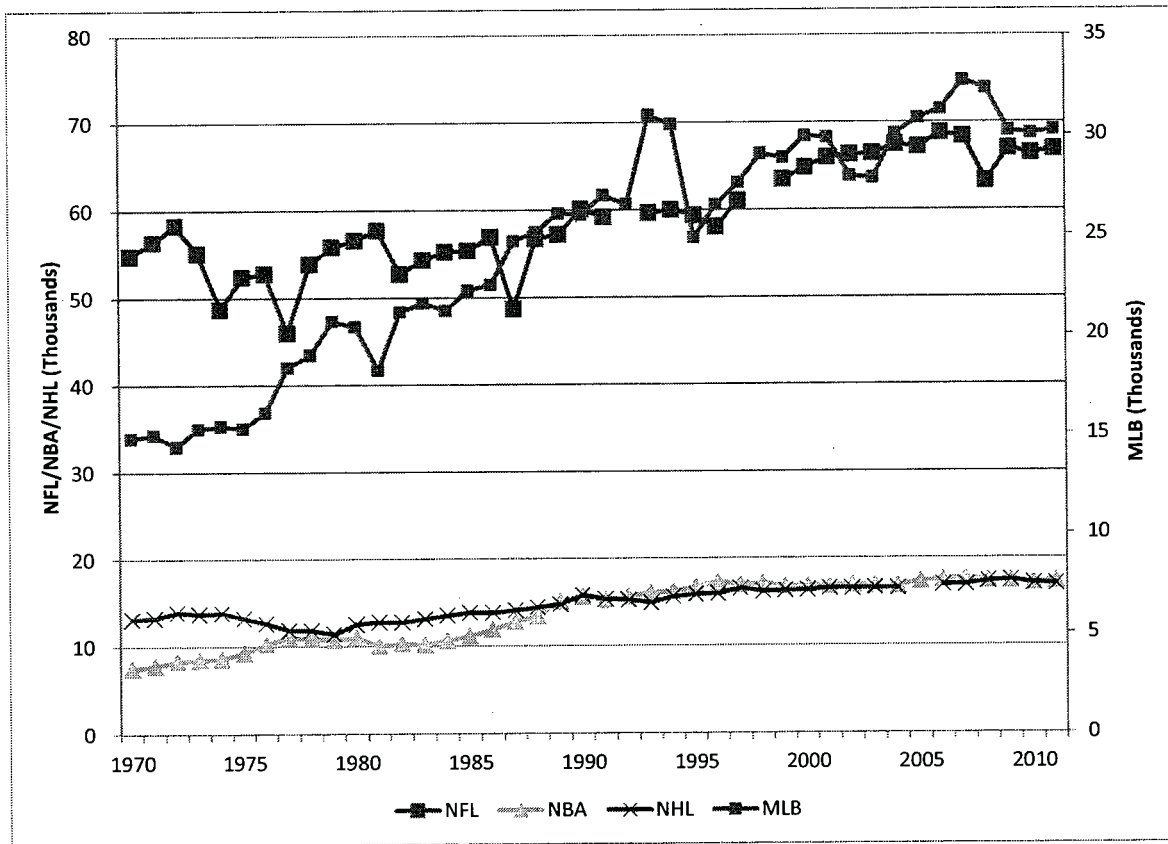
Professional Leagues – Attendance – Per Team



Source: see Sources for Exhibits III-A-1 through III-A-5

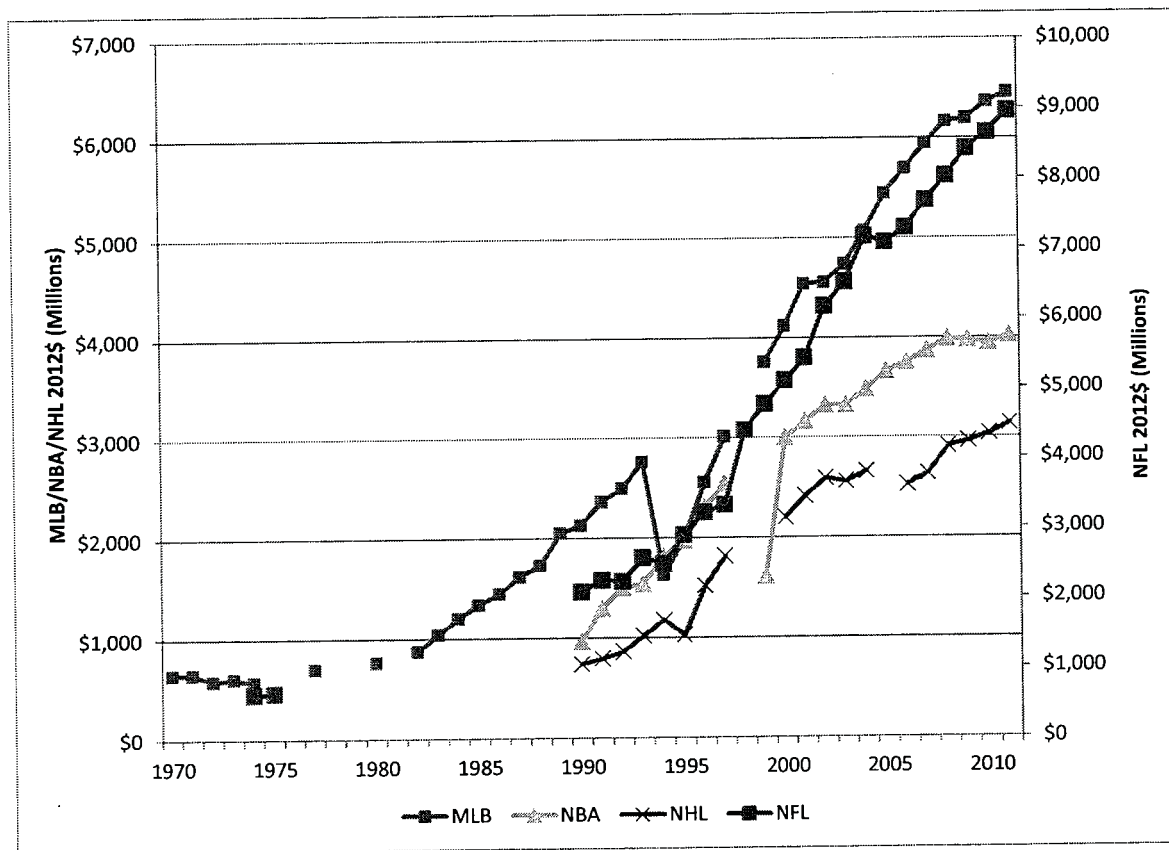
Exhibit III-A-3C

Professional Leagues – Attendance – Per Game



Source: see Sources for Exhibits III-A-1 through III-A-5

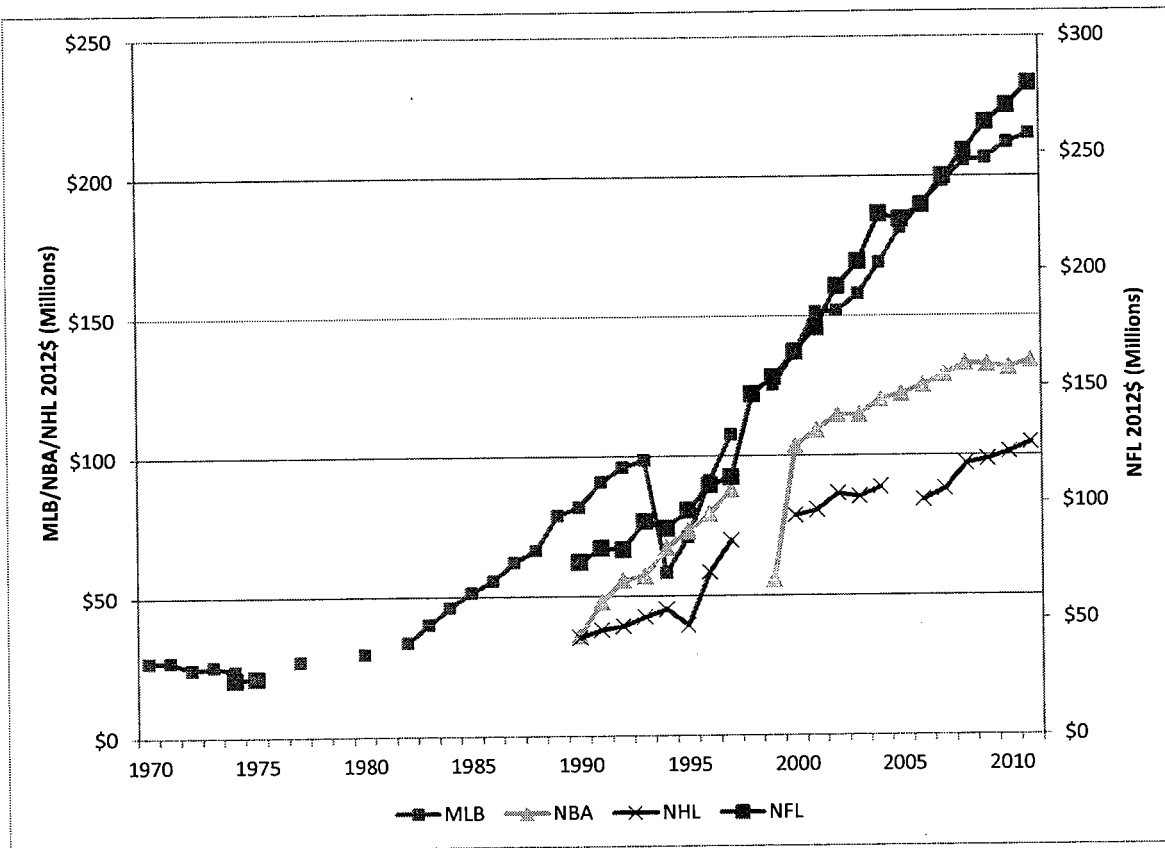
EXHIBIT III-A-4A **Professional Leagues – Total Revenue – Aggregate**



Source: see Sources for Exhibits III-A-1 through III-A-5

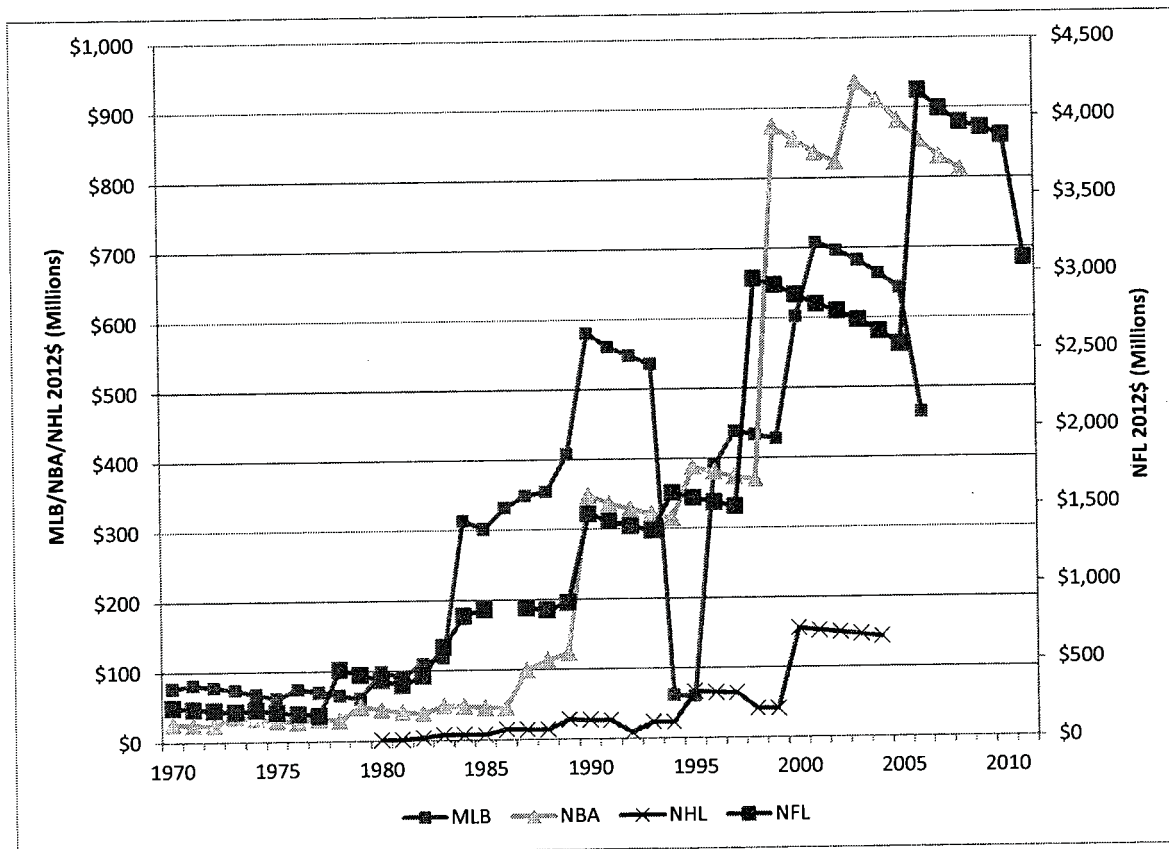
EXHIBIT III-A-4B

Professional Leagues – Total Revenue – Per Team



Source: see Sources for Exhibits III-A-1 through III-A-5

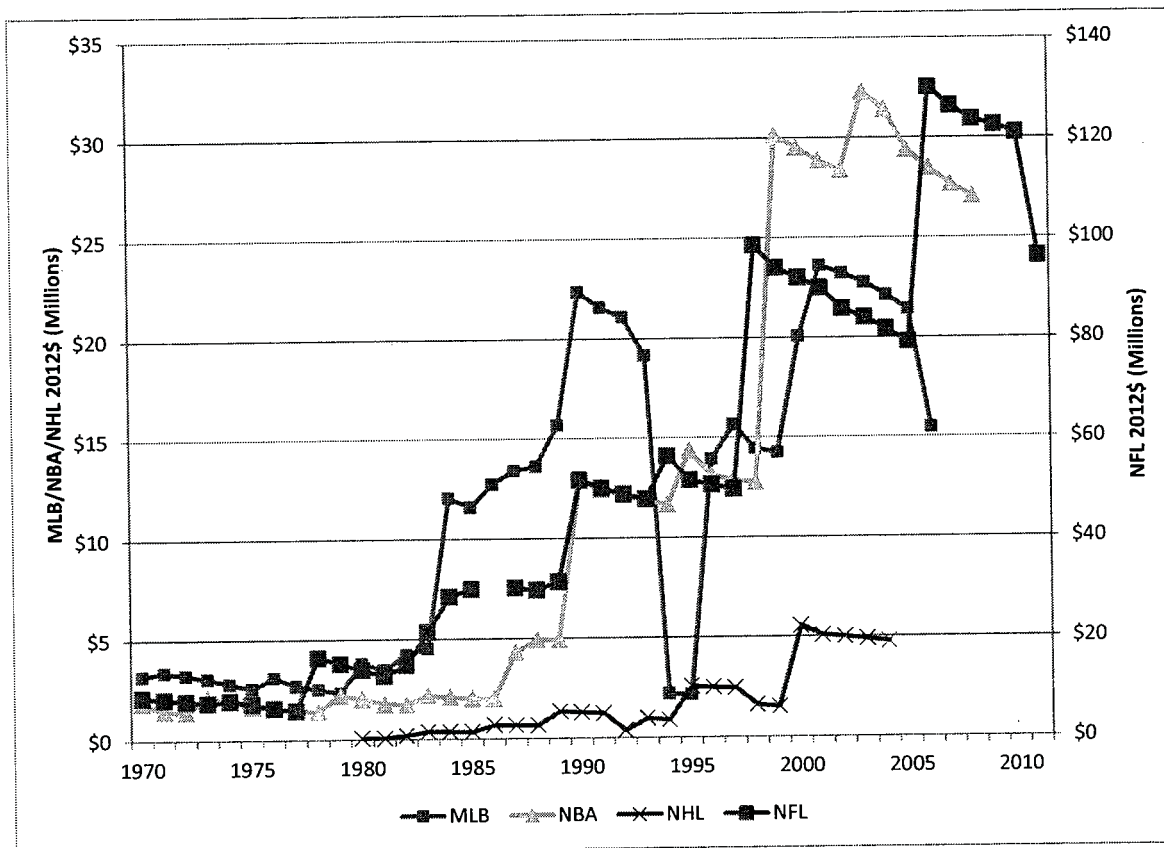
EXHIBIT III-A-5A **Professional Leagues – Broadcast Revenue – Aggregate**



Source: see Sources for Exhibits III-A-1 through III-A-5

EXHIBIT III-A-5B

Professional Leagues – Broadcast Revenue – Per Team



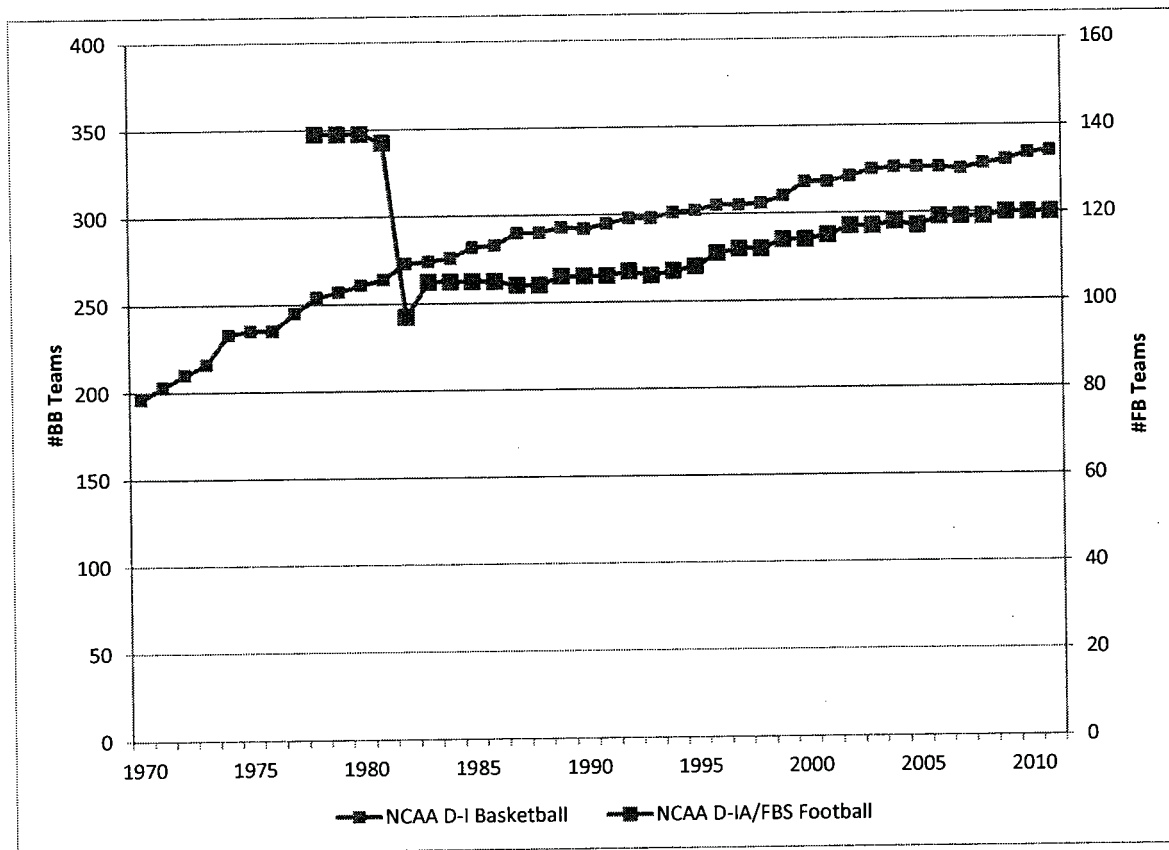
Source: see Sources for Exhibits III-A-1 through III-A-5

Sources of Exhibits III-A-1 through III-A-5

League	Variable	Sources	Files
MLB	Total Team Values	Rodney Fort Sports Business Data	MLBTeamValuesIndex.xls MLBTeamValues09.xlsx MLBTeamValues10.xlsx MLBTeamValues11.xlsx
	Number of Teams	Rodney Fort Sports Business Data	MLB Attend Index.xls
	Total Attendance	Rodney Fort Sports Business Data	MLB Attend Index.xls
	Total Revenue	Rodney Fort Sports Business Data	MLBCombined83-93.xls MLB Finances (multiple) MLBAveTeam69-74-77-80-83.xls
	National TV Revenue #Games in season	Rodney Fort Sports Business Data Rodney Fort Sports Business Data	MLBNatTV62-06.xls MLB Attend Index.xls
Notes: Revenue for national TV contracts that cover more than one year is equally divided across all years covered by the contract. For the 1994 and 1995 baseball seasons MLB entered a revenue sharing venture with ABC and NBC for TV coverage. Operating revenue is used instead of total revenue for 1969-1973 and 1983-1993. The #Games in Season variable was adjusted for strike shortened seasons.			
NFL	Total Team Values	Rodney Fort Sports Business Data	NFLTeamValuesIndex.xls NFLTeamValues10.xls NFLTeamValues11.xls
	Number of Teams	Rodney Fort Sports Business Data	NFLAttendIndex.xls
	Total Attendance	Rodney Fort Sports Business Data	NFLAttendIndex.xls
	Total Revenue	Rodney Fort Sports Business Data	NFLCombined68-69-74-75.xls NFL Finances.xls (multiple files)
	National TV Revenue #Games in Season	Rodney Fort Sports Business Data Rodney Fort Sports Business Data	NFLRightsFees60-13.xls NFLAttendIndex.xls
Notes: For 1968, 1969, 1974, and 1975 total income is reported instead of total revenue. Revenue for national TV contracts that cover more than one year is equally divided across all years covered by the contract.			
NBA	Total Team Values	Rodney Fort Sports Business Data	NBATeamValuesIndexForbes.xls NBATeamValuesIndexFW.xls NBATeamValues10.xlsx NBATeamValues11.xlsx
	Number of Teams	Rodney Fort Sports Business Data	NBA Attend Index.xls
	Total Attendance	Rodney Fort Sports Business Data	NBA Attend Index.xls
	Total Revenue	Rodney Fort Sports Business Data	NBA Finances.xls (multiple files)
	National TV Revenue #Games in Season	Rodney Fort Sports Business Data Rodney Fort Sports Business Data	NBATV.xls NBA Attend Index.xls
Notes: The year variable is the second year of the season. For example the data for the 1998-1999 season would be under 1999. Revenue for national TV contracts that cover more than one year is equally divided across all years covered by the contract. The #Games in Season variable was adjusted for strike shortened seasons.			
NHL	Total Team Values	Rodney Fort Sports Business Data	NHLTeamValuesIndexForbes.xls NHLTeamValuesIndexFW.xls NHLTeamValues11.xlsx
	Number of Teams	Rodney Fort Sports Business Data	NHLAttend Combined.xls NHLAttendIndex.xls
	Total Attendance	Rodney Fort Sports Business Data	NHLAttend Combined.xls NHLAttendIndex.xls
	Total Revenue	Rodney Fort Sports Business Data	NHL Finances.xls (multiple files)
	National TV Revenue #Games in Season	Rodney Fort Sports Business Data Rodney Fort Sports Business Data	NHLTVAnnually.xls NHLAttend Combined.xls NHLAttendIndex.xls
Notes: The year variable is the second year of the season. For example the data for the 1998-1999 season would be under 1999. Revenue for national TV contracts that cover more than one year is equally divided across all years covered by the contract.			

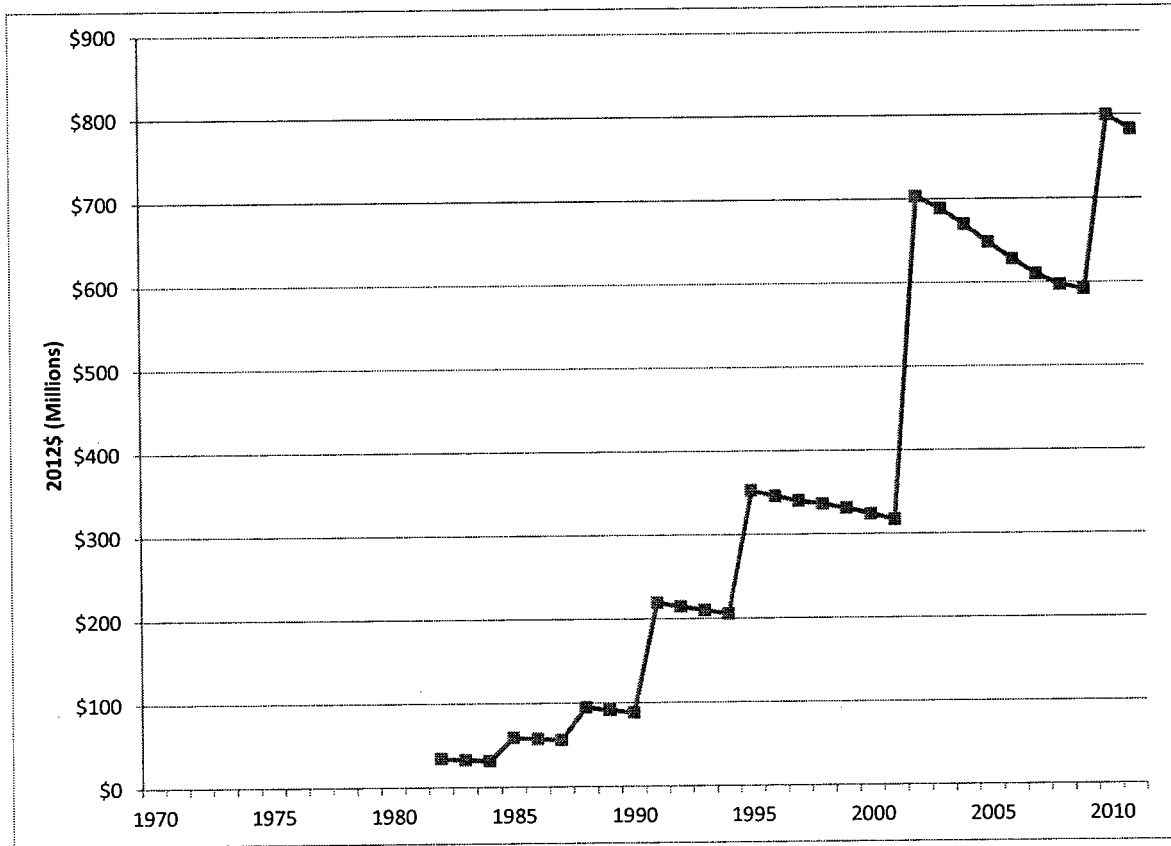
EXHIBIT III-B-1

NCAA – No. of Div. I Basketball and Div. I-A/FBS Football Teams



Source: see Sources for Exhibits III-B-1 through III-B-4

EXHIBIT III-B-2
NCAA – “March Madness” Media Rights Revenue



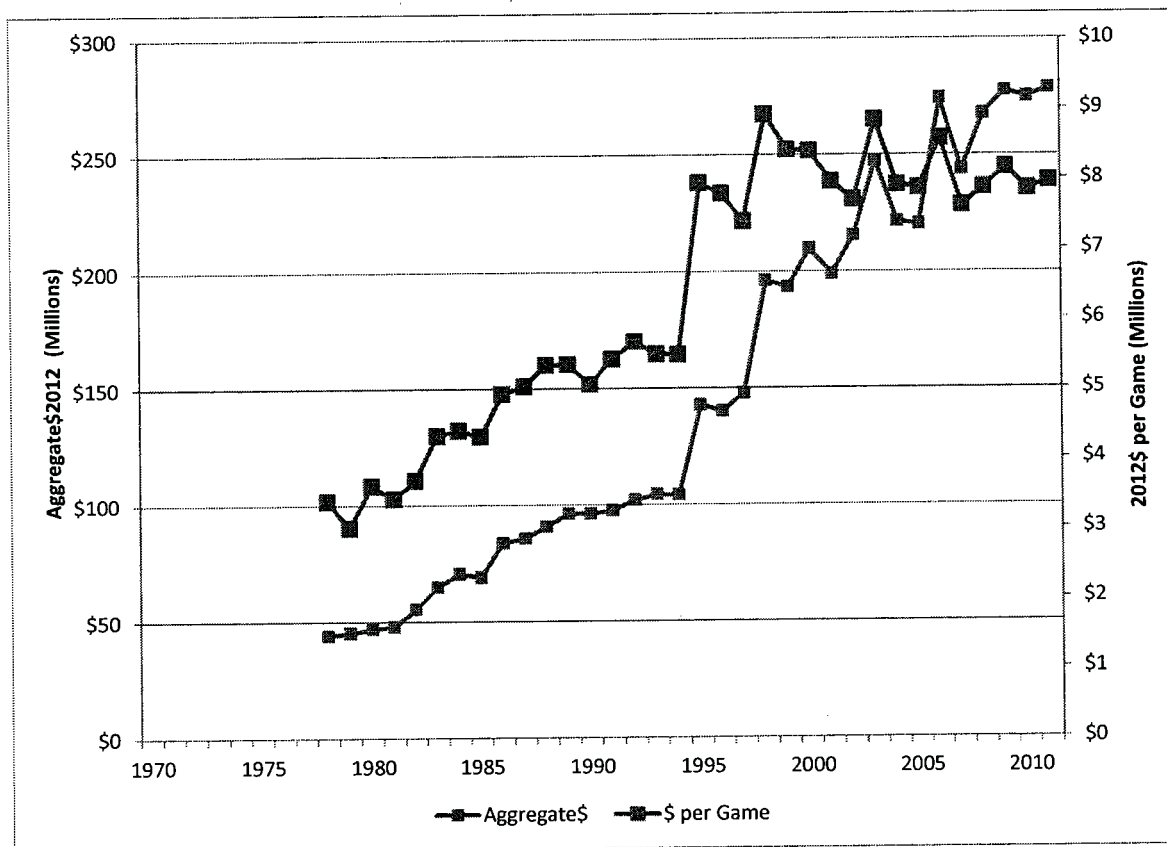
Source: see Sources for Exhibits III-B-1 through III-B-4

EXHIBIT III-B-3
NCAA – Number of Football Bowl Games



Source: see Sources for Exhibits III-B-1 through III-B-4

EXHIBIT III-B-4 **NCAA – Football Bowl Game Payout – Aggregate and Per Game**



Source: see Sources for Exhibits III-B-1 through III-B-4

Sources of Exhibits III-B-1 through III-B-4

League	Variable	Sources
NCAA-BB	Number of Teams	NCAA, "NCAA DIVISION I MEN'S BASKETBALL STATISTICAL TRENDS," http://fs.ncaa.org/Docs/stats/m_basketball_RB/Reports/All-time%20Statistical%20Trends%20chart.pdf
	Media Rights	NCAA, "Revenue," http://www.ncaa.org/wps/wcm/connect/public/NCAA/Finances/Revenue Agreements (spread evenly over life of agreement) 1982...CBS*...3...years...\$49.9 million 1985 CBS 3 years \$94.7 million 1988 CBS 3 years \$166 million 1991 CBS 7 years \$1 billion 1995 CBS Extension \$1.75 billion 2002 CBS 11 years \$6 billion 2002 ESPN 11 years \$200 million 2010 CBS/Turner 14 years \$10.8 billion *Football agreement also was in place.
NCAA-FB	Number of Teams	NCAA Football, "Attendance Records," page 2, http://fs.ncaa.org/Docs/stats/football_records/2012/attend.pdf
	Number of Bowl Games	NCAA Football, Bowl/All-Star Game Records, page 12, http://fs.ncaa.org/Docs/stats/football_records/2011/Bowls.pdf
	Bowl Game Payout	NCAA Football, Bowl/All-Star Game Records, page 12, http://fs.ncaa.org/Docs/stats/football_records/2011/Bowls.pdf

Appendix A
Curriculum Vitae

Name: Robert D. Willig

Address: 220 Ridgeview Road, Princeton, New Jersey 08540

Birth: 1/16/47; Brooklyn, New York

Marital Status: Married, four children

Education: Ph.D. Economics, Stanford University, 1973
Dissertation: Welfare Analysis of Policies
Affecting Prices and Products.
Advisor: James Rosse

M.S. Operations Research, Stanford University, 1968.

A.B. Mathematics, Harvard University, 1967.

Professional Positions:

Professor of Economics and Public Affairs, Princeton University, 1978-.

Principal External Advisor, Infrastructure Program, Inter-American Development Bank, 6/97-8/98.

Deputy Assistant Attorney General, U.S. Department of Justice, 1989-1991.

Supervisor, Economics Research Department, Bell Laboratories, 1977-1978.

Visiting Lecturer (with rank of Associate Professor), Department of Economics and Woodrow Wilson School, Princeton University, 1977-78 (part time).

Economics Research Department, Bell Laboratories, 1973-77.

Lecturer, Economics Department, Stanford University, 1971-73.

Other Professional Activities:

ABA Section of Antitrust Law Economics Task Force, 2010-2012

Advisory Committee, Compass Lexecon 2010 -,

OECD Advisory Council for Mexican Economic Reform, 2008 -2009,

Senior Consultant, Compass Lexecon, 2008 -,

Director, Competition Policy Associates, Inc., 2003-2005

Advisory Board, Electronic Journal of Industrial Organization and Regulation Abstracts, 1996-.

Advisory Board, Journal of Network Industries, 2004-.

Visiting Faculty Member (occasional), International Program on Privatization and Regulatory Reform, Harvard Institute for International Development, 1996-2000.

Member, National Research Council Highway Cost Allocation Study Review Committee, 1995-98.

Member, Defense Science Board Task Force on the Antitrust Aspects of Defense Industry Consolidation, 1993-94.

Editorial Board, Utilities Policy, 1990-2001

Leif Johanson Lecturer, University of Oslo, November 1988.

Member, New Jersey Governor's Task Force on Market-Based Pricing of Electricity, 1987-89.

Co-editor, Handbook of Industrial Organization, 1984-89.

Associate Editor, Journal of Industrial Economics, 1984-89.

Director, Consultants in Industry Economics, Inc., 1983-89, 1991-94.

Fellow, Econometric Society, 1981-.

Organizing Committee, Carnegie-Mellon-N.S.F. Conference on Regulation, 1985.

Board of Editors, American Economic Review, 1980-83.

Nominating Committee, American Economic Association, 1980-1981.

Research Advisory Committee, American Enterprise Institute, 1980-1986.

Editorial Board, M.I.T. Press Series on Government Regulation of Economic Activity, 1979-93.

Program Committee, 1980 World Congress of the Econometric Society.

Program Committee, Econometric Society, 1979, 1981, 1985.

Organizer, American Economic Association Meetings: 1980, 1982.

American Bar Association Section 7 Clayton Act Committee, 1981.

Principal Investigator, NSF grant SOC79-0327, 1979-80; NSF grant 285-6041, 1980-82; NSF grant SES-8038866, 1983-84, 1985-86.

Aspen Task Force on the Future of the Postal Service, 1978-80.

Organizing Committee of Sixth Annual Telecommunications Policy Research Conference, 1977-78.

Visiting Fellow, University of Warwick, July 1977.

Institute for Mathematical Studies in the Social Sciences, Stanford University, 1975.

Published Articles and Book Chapters:

"Competition and innovation-driven inclusive growth" (with Mark Dutz, Ioannis Kessides and Stephen O'Connell), in Promoting Inclusive Growth: Challenges and Policies, Luiz de Mello and Mark Dutz (eds.), OECD, 2011.

"Unilateral Competitive Effects of Mergers: Upward Pricing Pressure, Product Quality, and Other Extensions," Review of Industrial Organization (2011) 39:19–38.

"Antitrust and Patent Settlements: The Pharmaceutical Cases," (with John Bigelow) in The Antitrust Revolution (Fifth Edition), John Kwoka and Lawrence White (eds.), 2009.

"The 1982 Department of Justice Merger Guidelines: An Economic Assessment," (with J. Ordovery) reprinted in Economics of Antitrust Law, Benjamin Klein (ed.), Edward Elgar, 2008.

"On the Antitrust Treatment of Production Joint Ventures," (with Carl Shapiro) reprinted in Economics of Antitrust Law, Benjamin Klein (ed.), Edward Elgar, 2008.

"Consumer's Surplus Without Apology," reprinted in Applied Welfare Economics, Richard Just, Darrel Hueth and Andrew Schmitz (eds.), Edward Elgar, 2008; reprinted in Readings in

Social Welfare: Theory and Policy, Robert E. Kuenne (ed.), Blackwell, 2000, pp. 86-97; reprinted in Readings in Microeconomic Theory, M. M. La Manna (ed.), Dryden Press, 1997, pp. 201-212.

“The Risk of Contagion from Multi-Market Contact,” (with Charles Thomas), The International Journal of Industrial Organization, Vol. 24, Issue 6 (Nov. 2006), pp 1157 – 1184.

“Pareto-Superior Nonlinear Outlay Schedules,” reprinted in The Economics of Public Utilities, Ray Rees (ed.), Edward Elgar, 2006; reprinted in The Economics of Price Discrimination, G. Norman, (ed.), Edward Elgar, 1999.

“Economic Effects of Antidumping Policy,” reprinted in The WTO and Anti-Dumping, Douglas Nelson (ed.), Edward Elgar, 2005.

“Merger Analysis, Industrial Organization Theory and the Merger Guidelines,” reprinted in Antitrust and Competition Policy, Andrew Kleit (ed.) Edward Elgar, 2005

“Antitrust Policy Towards Agreements That Settle Patent Litigation,” (with John Bigelow), Antitrust Bulletin, Fall 2004, pp. 655-698.

“Economies of Scope,” (with John Panzar), reprinted in The Economics of Business Strategy, John Kay (ed.), Edward Elgar, 2003.

“Panel on Substantive Standards for Mergers and the Role of Efficiencies,” in International Antitrust Law & Policy, Barry E. Hawk (ed.), Juris Publishing, 2003.

“Practical Rules for Pricing Access in Telecommunications,” (with J. Ordovery) in Second Generation Reforms in Infrastructure Services, F. Basanes and R. Willig (eds.), Johns Hopkins Press, 2002.

“Comments on Antitrust Policy in the Clinton Administration,” in American Economic Policy in the 1990s, J. Frankel and P. Orszag (eds.), MIT Press, 2002.

“Entrepreneurship, Access Policy and Economic Development: Lessons from Industrial Organization,” (with M. Dutz and J. Ordovery), European Economic Review, (44)4-6 (2000), pp. 739-747.

“Public Versus Regulated Private Enterprise,” reprinted in Privatization in Developing Countries, P. Cook and C. Kirkpatrick (eds.), Edward Elgar, 2000.

“Deregulation v. the Legal Culture: Panel Discussion,” in Is the Telecommunications Act of 1996 Broken?, G. Sidak (ed.), AEI Press, 1999.

"Economic Principles to Guide Post-Privatization Governance," in Can Privatization Deliver? Infrastructure for Latin America, R. Willig co-editor, Johns Hopkins Press, 1999.

"Access and Bundling in High-Technology Markets," (with J. A. Ordover), in Competition, Innovation and the Microsoft Monopoly: Antitrust in the Digital Marketplace, J. A. Eisenach and T. Lenard (eds.), Kluwer, 1999.

"Competitive Rail Regulation Rules: Should Price Ceilings Constrain Final Products or Inputs?," (With W. J. Baumol), Journal of Transport Economics and Policy, Vol. 33, Part 1, pp. 1-11.

"Economic Effects of Antidumping Policy," Brookings Trade Forum: 1998, 19-41.

"Interview With Economist Robert D. Willig," Antitrust, Vol. 11, No. 2, Spring 1997, pp.11-15.

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"Competition and Regulation in the Railroad Industry," (with Ioannis Kessides), in Regulatory Policies and Reform: A Comparative Perspective, C. Frischtak (ed.), World Bank, 1996.

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"Weak Invisible Hand Theorems on the Sustainability of Multi-product Natural Monopoly," (with W. Baumol and E. Bailey), reprinted in The Political Economy of Privatization and Deregulation, E. E. Bailey and J. R. Pack (eds.), The International Library of Critical Writings in Economics, Edward Elgar Publishing Co., 1995, pp. 245-260.

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"Antitrust Lessons from the Airlines Industry: The DOJ Experience," Antitrust Law Journal, V. 60, No. 2 (1992).

"William J. Baumol," (with E. E. Bailey), in New Horizons in Economic Thought: Appraisals of Leading Economists, W. J. Samuels (ed.), Edward Elgar, 1992.

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"Contestable Market Theory and Regulatory Reform," in Telecommunications Deregulation: Market Power and Cost Allocation, J.R. Allison and D.L. Thomas (eds.), Ballinger, 1990.

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"Economics and Postal Pricing Policy," (with B. Owen), in The Future of the Postal Service, J. Fleishman (ed.), Praeger, 1983.

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"Intertemporal Failures of the Invisible Hand: Theory and Implications for International Market Dominance," (with W.J. Baumol), Indian Economic Review, Vol. XVI, Nos. 1 and 2, January-June 1981, pp. 1-12.

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Books

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"Airline Network Effects, Competition and Consumer Welfare" (with Bryan Keating, Mark Israel and Daniel Rubinfeld), working paper, 2011.

"Public Comments on the 2010 Draft Horizontal Merger Guidelines," paper posted to Federal Trade Commission website, 6/4/2010

"The Consumer Benefits from Broadband Connectivity to U.S. Households," (with Mark Dutz and Jon Orszag), submitted for publication.

"An Econometric Analysis of the Matching Between Football Student-Athletes and Colleges,"

(with Yair Eilat, Bryan Keating and Jon Orszag), submitted for publication.

Supreme Court Amicus Brief Regarding Morgan Stanley Capital Group Inc. v. Public Utility District No. 1 of Snohomish County, Washington, (co-authored), AEI-Brookings Joint Center Brief No. 07-02, 12/2/07

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“Assessment of U.S. Merger Enforcement Policy,” statement before the Antitrust Modernization Commission, 11/17/05.

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“Stimulating Investment and the Telecommunications Act of 1996,” (with J. Bigelow, W. Lehr and S. Levinson), 2002.

“An Economic Analysis of Spectrum Allocation and Advanced Wireless Services,” (with Martin N. Baily, Peter R. Orszag, and Jonathan M. Orszag), 2002

“Effective Deregulation of Residential Electric Service,” 2001

“Anticompetitive Forced Rail Access,” (with W. J. Baumol), 2000

“The Scope of Competition in Telecommunications” (with B. Douglas Bernheim), 1998

“Why Do Christie and Schultz Infer Collusion From Their Data? (with Alan Kleidon), 1995.

“Demonopolization,” (with Sally Van Sice), OECD Vienna Seminar Paper, 1993.

“Economic Analysis of Section 337: The Balance Between Intellectual Property Protection and Protectionism,” (with J. Ordover) 1990.

“The Effects of Capped NTS Charges on Long Distance Competition,” (with M. Katz).

“Discussion of Regulatory Mechanism Design in the Presence of Research Innovation, and Spillover Effects,” 1987.

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"The Continuing Need for and National Benefits Derived from the REA Telephone Loan Programs - An Economic Assessment," 1981.

"The Economics of Equipment Leasing: Costing and Pricing," 1980.

"Rail Deregulation and the Financial Problems of the U.S. Railroad Industry," (with W.J. Baumol), report prepared under contract to Conrail, 1979.

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"An Economic-Demographic Model of the Housing Sector," (with B. Hickman and M. Hinz), Center for Research in Economic Growth, Stanford University, 1973.

Invited Conference Presentations:

Georgetown Center for Business and Public Policy, Conference on the Evolution of Regulation	
"Reflections on Regulation"	2011

Antitrust Forum, New York State Bar Association	
"Upward Price Pressure, Market Definition and Supply Mobility"	2011

American Bar Association, Antitrust Section, Annual Convention	
"The New Merger Guidelines' Analytic Highlights"	2011

OECD and World Bank Conference on Challenges and Policies for Promoting Inclusive Growth	
"Inclusive Growth From Competition and Innovation"	2011

Villanova School of Business Executive MBA Conference	
"Airline Network Effects, Competition and Consumer Welfare"	2011

NYU School of Law Conference on Critical Directions in Antitrust "Unilateral Competitive Effects"	2010
Conf. on the State of European Competition Law and Enforcement in a Transatlantic Context "Recent Developments in Merger Control"	2010
Center on Regulation and Competition, Universidad de Chile Law School "Economic Regulation and the Limits of Antitrust Law"	2010
Center on Regulation and Competition, Universidad de Chile Law School "Merger Policy and Guidelines Revision"	2010
Faculty of Economics, Universidad de Chile "Network Effects in Airlines Markets"	2010
Georgetown Law Global Antitrust Enforcement Symposium "New US Merger Guidelines"	2010
FTI London Financial Services Conference "Competition and Regulatory Reform"	2010
NY State Bar Association Annual Antitrust Conference "New Media Competition Policy"	2009
Antitrust Law Spring Meeting of the ABA "Antitrust and the Failing Economy Defense"	2009
Georgetown Law Global Antitrust Enforcement Symposium "Mergers: New Enforcement Attitudes in a Time of Economic Challenge"	2009
Phoenix Center US Telecoms Symposium "Assessment of Competition in the Wireless Industry"	2009
FTC and DOJ Horizontal Merger Guidelines Workshop "Direct Evidence is No Magic Bullet"	2009
Northwestern Law Research Symposium: Antitrust Economics and Competition Policy "Discussion of Antitrust Evaluation of Horizontal Mergers"	2008
Inside Counsel Super-Conference "Navigating Mixed Signals under Section 2 of the Sherman Act"	2008
Federal Trade Commission Workshop on Unilateral Effects in Mergers "Best Evidence and Market Definition"	2008

European Policy Forum, Rules for Growth: Telecommunications Regulatory Reform “What Kind of Regulation For Business Services?”	2007
Japanese Competition Policy Research Center, Symposium on M&A and Competition Policy “Merger Policy Going Forward With Economics and the Economy”	2007
Federal Trade Commission and Department of Justice Section 2 Hearings “Section 2 Policy and Economic Analytic Methodologies”	2007
Pennsylvania Bar Institute, Antitrust Law Committee CLE “The Economics of Resale Price Maintenance and Class Certification”	2007
Pennsylvania Bar Institute, Antitrust Law Committee CLE “Antitrust Class Certification – An Economist’s Perspective”	2007
Fordham Competition Law Institute, International Competition Economics Training Seminar “Monopolization and Abuse of Dominance”	2007
Canadian Bar Association Annual Fall Conference on Competition Law “Economic Tools for the Competition Lawyer”	2007
Conference on Managing Litigation and Business Risk in Multi-jurisdiction Antitrust Matters “Economic Analysis in Multi-jurisdictional Merger Control”	2007
World Bank Conference on Structuring Regulatory Frameworks for Dynamic and Competitive South Eastern European Markets “The Roles of Government Regulation in a Dynamic Economy”	2006
Department of Justice/Federal Trade Commission Section 2 Hearings “(Allegedly) Monopolizing Tying Via Product Innovation”	2006
Fordham Competition Law Institute, Competition Law Seminar “Monopolization and Abuse of Dominance”	2006
Practicing Law Institute on Intellectual Property Antitrust “Relevant Markets for Intellectual Property Antitrust”	2006
PLI Annual Antitrust Law Institute “Cutting Edge Issues in Economics”	2006
World Bank’s Knowledge Economy Forum V “Innovation, Growth and Competition”	2006
Charles University Seminar Series “The Dangers of Over-Ambitious Antitrust Regulation”	2006

NY State Bar Association Antitrust Law Section Annual Meeting “Efficient Integration or Illegal Monopolization?”	2006
World Bank Seminar “The Dangers of Over-Ambitious Regulation”	2005
ABA Section of Antitrust Law 2005 Fall Forum “Is There a Gap Between the Guidelines and Agency Practice?”	2005
Hearing of Antitrust Modernization Commission “Assessment of U.S. Merger Enforcement Policy”	2005
LEAR Conference on Advances in the Economics of Competition Law “Exclusionary Pricing Practices”	2005
Annual Antitrust Law Institute “Cutting Edge Issues in Economics”	2005
PRIOR Symposium on States and Stem Cells “Assessing the Economics of State Stem Cell Programs”	2005
ABA Section of Antitrust Law – AALS Scholars Showcase “Distinguishing Anticompetitive Conduct”	2005
Allied Social Science Associations National Convention “Antitrust in the New Economy”	2005
ABA Section of Antitrust Law 2004 Fall Forum “Advances in Economic Analysis of Antitrust”	2004
Phoenix Center State Regulator Retreat “Regulatory Policy for the Telecommunications Revolution”	2004
OECD Competition Committee “Use of Economic Evidence in Merger Control”	2004
Justice Department/Federal Trade Commission Joint Workshop “Merger Enforcement”	2004
Phoenix Center Annual U.S. Telecoms Symposium “Incumbent Market Power”	2003
Center for Economic Policy Studies Symposium on Troubled Industries “What Role for Government in Telecommunications?”	2003

Princeton Workshop on Price Risk and the Future of the Electric Markets "The Structure of the Electricity Markets"	2003
2003 Antitrust Conference "International Competition Policy and Trade Policy"	2003
International Industrial Organization Conference "Intellectual Property System Reform"	2003
ABA Section of Antitrust Law 2002 Fall Forum "Competition, Regulation and Pharmaceuticals"	2002
Fordham Conference on International Antitrust Law and Policy "Substantive Standards for Mergers and the Role of Efficiencies"	2002
Department of Justice Telecom Workshop "Stimulating Investment and the Telecommunications Act of 1996"	2002
Department of Commerce Conference on the State of the Telecom Sector "Stimulating Investment and the Telecommunications Act of 1996"	2002
Law and Public Affairs Conference on the Future of Internet Regulation "Open Access and Competition Policy Principles"	2002
Center for Economic Policy Studies Symposium on Energy Policy "The Future of Power Supply"	2002
The Conference Board: Antitrust Issues in Today's Economy "The 1982 Merger Guidelines at 20"	2002
Federal Energy Regulatory Commission Workshop "Effective Deregulation of Residential Electric Service"	2001
IPEA International Seminar on Regulation and Competition "Electricity Markets: Deregulation of Residential Service" "Lessons for Brazil from Abroad"	2001 2001
ABA Antitrust Law Section Task Force Conference "Time, Change, and Materiality for Monopolization Analyses"	2001
Harvard University Conference on American Economic Policy in the 1990s "Comments on Antitrust Policy in the Clinton Administration"	2001
Tel-Aviv Workshop on Industrial Organization and Anti-Trust "The Risk of Contagion from Multimarket Contact"	2001

2001 Antitrust Conference	
“Collusion Cases: Cutting Edge or Over the Edge?”	2001
“Dys-regulation of California Electricity”	2001
FTC Public Workshop on Competition Policy for E-Commerce	
“Necessary Conditions for Cooperation to be Problematic”	2001
HIID International Workshop on Infrastructure Policy	
“Infrastructure Privatization and Regulation”	2000
Villa Mondragone International Economic Seminar	
“Competition Policy for Network and Internet Markets”	2000
New Developments in Railroad Economics: Infrastructure Investment and Access Policies	
“Railroad Access, Regulation, and Market Structure”	2000
The Multilateral Trading System at the Millennium	
“Efficiency Gains From Further Liberalization”	2000
Singapore – World Bank Symposium on Competition Law and Policy	
“Policy Towards Cartels and Collusion”	2000
CEPS: Is It a New World?: Economic Surprises of the Last Decade	
“The Internet and E-Commerce”	2000
Cutting Edge Antitrust: Issues and Enforcement Policies	
“The Direction of Antitrust Entering the New Millennium”	2000
The Conference Board: Antitrust Issues in Today’s Economy	
“Antitrust Analysis of Industries With Network Effects”	1999
CEPS: New Directions in Antitrust	
“Antitrust in a High-Tech World”	1999
World Bank Meeting on Competition and Regulatory Policies for Development	
“Economic Principles to Guide Post-Privatization Governance”	1999
1999 Antitrust Conference	
“Antitrust and the Pace of Technological Development”	1999
“Restructuring the Electric Utility Industry”	1999
HIID International Workshop on Privatization, Regulatory Reform and Corporate Governance	
“Privatization and Post-Privatization Regulation of Natural Monopolies”	1999

The Federalist Society: Telecommunications Deregulation: Promises Made, Potential Lost?	
“Grading the Regulators”	1999
Inter-American Development Bank: Second Generation Issues In the Reform Of Public Services	
“Post-Privatization Governance”	1999
“Issues Surrounding Access Arrangements”	1999
Economic Development Institute of the World Bank -- Program on Competition Policy	
“Policy Towards Horizontal Mergers”	1998
Twenty-fifth Anniversary Seminar for the Economic Analysis Group of the Department of Justice	
“Market Definition in Antitrust Analysis”	1998
HIID International Workshop on Privatization, Regulatory Reform and Corporate Governance	
“Infrastructure Architecture and Regulation: Railroads”	1998
EU Committee Competition Conference – Market Power	
“US/EC Perspective on Market Definition”	1998
Federal Trade Commission Roundtable	
“Antitrust Policy for Joint Ventures”	1998
1998 Antitrust Conference	
“Communications Mergers”	1998
The Progress and Freedom Foundation Conference on Competition, Convergence, and the Microsoft Monopoly	
Access and Bundling in High-Technology Markets	1998
FTC Program on The Effective Integration of Economic Analysis into Antitrust Litigation	
The Role of Economic Evidence and Testimony	1997
FTC Hearings on Classical Market Power in Joint Ventures	
Microeconomic Analysis and Guideline	1997
World Bank Economists --Week IV Keynote	
Making Markets More Effective With Competition Policy	1997
Brookings Trade Policy Forum	
Competition Policy and Antidumping: The Economic Effects	1997

University of Malaya and Harvard University Conference on The Impact of Globalisation and Privatisation on Malaysia and Asia in the Year 2020 Microeconomics, Privatization, and Vertical Integration	1997
ABA Section of Antitrust Law Conference on The Telecommunications Industry Current Economic Issues in Telecommunications	1997
Antitrust 1998: The Annual Briefing The Re-Emergence of Distribution Issues	1997
Inter-American Development Bank Conference on Private Investment, Infrastructure Reform and Governance in Latin America & the Caribbean Economic Principles to Guide Post-Privatization Governance	1997
Harvard Forum on Regulatory Reform and Privatization of Telecommunications in the Middle East Privatization: Methods and Pricing Issues	1997
American Enterprise Institute for Public Policy Research Conference Discussion of Local Competition and Legal Culture	1997
Harvard Program on Global Reform and Privatization of Public Enterprises “Infrastructure Privatization and Regulation: Freight”	1997
World Bank Competition Policy Workshop “Competition Policy for Entrepreneurship and Growth”	1997
Eastern Economics Association Paul Samuelson Lecture “Bottleneck Access in Regulation and Competition Policy”	1997
ABA Annual Meeting, Section of Antitrust Law “Antitrust in the 21st Century: The Efficiencies Guidelines”	1997
Peruvian Ministry of Energy and Mines Conference on Regulation of Public Utilities “Regulation: Theoretical Context and Advantages vs. Disadvantages”	1997
The FCC: New Priorities and Future Directions “Competition in the Telecommunications Industry”	1997
American Enterprise Institute Studies in Telecommunications Deregulation “The Scope of Competition in Telecommunications”	1996
George Mason Law Review Symposium on Antitrust in the Information Revolution “Introduction to the Economic Theory of Antitrust and Information”	1996

Korean Telecommunications Public Lecture “Market Opening and Fair Competition”	1996
Korea Telecommunications Forum “Desirable Interconnection Policy in a Competitive Market”	1996
European Association for Research in Industrial Economics Annual Conference “Bottleneck Access: Regulation and Competition Policy”	1996
Harvard Program on Global Reform and Privatization of Public Enterprises “Railroad and Other Infrastructure Privatization”	1996
FCC Forum on Antitrust and Economic Issues Involved with InterLATA Entry “The Scope of Telecommunications Competition”	1996
Citizens for a Sound Economy Policy Watch on Telecommunications Interconnection “The Economics of Interconnection”	1996
World Bank Seminar on Experiences with Corporatization “Strategic Directions of Privatization”	1996
FCC Economic Forum on the Economics of Interconnection Lessons from Other Industries	1996
ABA Annual Meeting, Section of Antitrust Law The Integration, Disintegration, and Reintegration of the Entertainment Industry	1996
Conference Board: 1996 Antitrust Conference How Economics Influences Antitrust and Vice Versa	1996
Antitrust 1996: A Special Briefing Joint Ventures and Strategic Alliances	1996
New York State Bar Association Section of Antitrust Law Winter Meeting Commentary on Horizontal Effects Issues	1996
FTC Hearings on the Changing Nature of Competition in a Global and Innovation-Driven Age Vertical Issues for Networks and Standards	1995
Wharton Seminar on Applied Microeconomics Access Policies with Imperfect Regulation	1995

Antitrust 1996, Washington D.C. Assessing Joint Ventures for Diminution of Competition	1995
ABA Annual Meeting, Section of Antitrust Law Refusals to Deal -- Economic Tests for Competitive Harm	1995
FTC Seminar on Antitrust Enforcement Analysis Diagnosing Collusion Possibilities	1995
Philadelphia Bar Education Center: Antitrust Fundamentals Antitrust--The Underlying Economics	1995
Vanderbilt University Conference on Financial Markets Why Do Christie and Schultz Infer Collusion From Their Data?	1995
ABA Section of Antitrust Law Chair=s Showcase Program Discussion of Telecommunications Competition Policy	1995
Conference Board: 1995 Antitrust Conference Analysis of Mergers and Joint Ventures	1995
ABA Conference on The New Antitrust: Policy of the '90s Antitrust on the Super Highways/Super Airways	1994
ITC Hearings on The Economic Effects of Outstanding Title VII Orders "The Economic Impacts of Antidumping Policies"	1994
OECD Working Conference on Trade and Competition Policy "Empirical Evidence on The Nature of Anti-dumping Actions"	1994
Antitrust 1995, Washington D.C. "Rigorous Antitrust Standards for Distribution Arrangements"	1994
ABA -- Georgetown Law Center: Post Chicago-Economics: New Theories - New Cases? "Economic Foundations for Vertical Merger Guidelines"	1994
Conference Board: Antitrust Issues in Today's Economy "New Democrats, Old Agencies: Competition Law and Policy"	1994
Federal Reserve Board Distinguished Economist Series "Regulated Private Enterprise Versus Public Enterprise"	1994
Institut d'Etudes Politiques de Paris "Lectures on Competition Policy and Privatization"	1993

Canadian Bureau of Competition Policy Academic Seminar Series, Toronto. "Public Versus Regulated Private Enterprise"	1993
CEPS Symposium on The Clinton Administration: A Preliminary Report Card "Policy Towards Business"	1993
Columbia Institute for Tele-Information Conference on Competition in Network Industries, New York, NY "Discussion of Deregulation of Networks: What Has Worked and What Hasn't"	1993
World Bank Annual Conference on Development Economics "Public Versus Regulated Private Enterprise"	1993
Center for Public Utilities Conference on Current Issues Challenging the Regulatory Process "The Economics of Current Issues in Telecommunications Regulation" "The Role of Markets in Presently Regulated Industries"	1992 1992
The Conference Board's Conference on Antitrust Issues in Today's Economy, New York, NY "Antitrust in the Global Economy" "Monopoly Issues for the '90s"	1992 1993
Columbia University Seminar on Applied Economic Theory, New York, NY "Economic Rationales for the Scope of Privatization"	1992
Howrey & Simon Conference on Antitrust Developments, Washington, DC "Competitive Effects of Concern in the Merger Guidelines"	1992
Arnold & Porter Colloquium on Merger Enforcement, Washington, DC "The Economic Foundations of the Merger Guidelines"	1992
American Bar Association, Section on Antitrust Law Leadership Council Conference, Monterey, CA "Applying the 1992 Merger Guidelines"	1992
OECD Competition Policy Meeting, Paris, France "The Economic Impacts of Antidumping Policy"	1992
Center for Public Choice Lecture Series, George Mason University Arlington, VA "The Economic Impacts of Antidumping Policy"	1992
Brookings Institution Microeconomics Panel, Washington, DC, "Discussion of the Evolution of Industry Structure"	1992
AT&T Conference on Antitrust Essentials	

"Antitrust Standards for Mergers and Joint Ventures"	1991
ABA Institute on The Cutting Edge of Antitrust: Market Power "Assessing and Proving Market Power: Barriers to Entry"	1991
Second Annual Workshop of the Competition Law and Policy Institute of New Zealand "Merger Analysis, Industrial Organization Theory, and Merger Guidelines"	1991
"Exclusive Dealing and the <u>Fisher & Paykel</u> Case"	1991
Special Seminar of the New Zealand Treasury "Strategic Behavior, Antitrust, and The Regulation of Natural Monopoly"	1991
Public Seminar of the Australian Trade Practices Commission "Antitrust Issues of the 1990's"	1991
National Association of Attorneys General Antitrust Seminar "Antitrust Economics"	1991
District of Columbia Bar's 1991 Annual Convention "Administrative and Judicial Trends in Federal Antitrust Enforcement"	1991
ABA Spring Meeting "Antitrust Lessons From the Airline Industry"	1991
Conference on The Transition to a Market Economy - Institutional Aspects "Anti-Monopoly Policies and Institutions"	1991
Conference Board's Thirtieth Antitrust Conference "Antitrust Issues in Today's Economy"	1991
American Association for the Advancement of Science Annual Meeting "Methodologies for Economic Analysis of Mergers"	1991
General Seminar, Johns Hopkins University "Economic Rationales for the Scope of Privatization"	1991
Capitol Economics Speakers Series "Economics of Merger Guidelines"	1991
CRA Conference on Antitrust Issues in Regulated Industries "Enforcement Priorities and Economic Principles"	1990
Pepper Hamilton & Scheetz Anniversary Colloquium "New Developments in Antitrust Economics"	1990

PLI Program on Federal Antitrust Enforcement in the 90's "The Antitrust Agenda of the 90's"	1990
FTC Distinguished Speakers Seminar "The Evolving Merger Guidelines"	1990
The World Bank Speakers Series "The Role of Antitrust Policy in an Open Economy"	1990
Seminar of the Secretary of Commerce and Industrial Development of Mexico "Transitions to a Market Economy"	1990
Southern Economics Association "Entry in Antitrust Analysis of Mergers"	1990
"Discussion of Strategic Investment and Timing of Entry"	1990
American Enterprise Institute Conference on Policy Approaches to the Deregulation of Network Industries "Discussion of Network Problems and Solutions"	1990
American Enterprise Institute Conference on Innovation, Intellectual Property, and World Competition "Law and Economics Framework for Analysis"	1990
Banco Nacional de Desenvolvimento Economico Social Lecture "Competition Policy: Harnessing Private Interests for the Public Interest"	1990
Western Economics Association Annual Meetings "New Directions in Antitrust from a New Administration"	1990
"New Directions in Merger Enforcement: The View from Washington"	1990
Woodrow Wilson School Alumni Colloquium "Microeconomic Policy Analysis and Antitrust--Washington 1990"	1990
Arnold & Porter Lecture Series "Advocating Competition"	1991
"Antitrust Enforcement"	1990
ABA Antitrust Section Convention "Recent Developments in Market Definition and Merger Analysis"	1990
Federal Bar Association "Joint Production Legislation: Competitive Necessity or Cartel Shield?"	1990
Pew Charitable Trusts Conference	

"Economics and National Security"	1990
ABA Antitrust Section Midwinter Council Meeting	
"Fine-tuning the Merger Guidelines"	1990
"The State of the Antitrust Division"	1991
International Telecommunications Society Conference	
"Discussion of the Impact of Telecommunications in the UK"	1989
The Economists of New Jersey Conference	
"Recent Perspectives on Regulation"	1989
Conference on Current Issues Challenging the Regulatory Process	
"Innovative Pricing and Regulatory Reform"	1989
"Competitive Wheeling"	1989
Conference Board: Antitrust Issues in Today's Economy	
"Foreign Trade Issues and Antitrust"	1989
McKinsey & Co. Mini-MBA Conference	
"Economic Analysis of Pricing, Costing, and Strategic Business Behavior"	1989
	1994
Olin Conference on Regulatory Mechanism Design	
"Revolutions in Regulatory Theory and Practice: Exploring The Gap"	1989
University of Dundee Conference on Industrial Organization and Strategic Behavior	
"Mergers in Differentiated Product Industries"	1988
Leif Johanson Lectures at the University of Oslo	
"Normative Issues in Industrial Organization"	1988
Mergers and Competitiveness: Spain Facing the EEC	
"Merger Policy"	1988
"R&D Joint Ventures"	1988
New Dimensions in Pricing Electricity	
"Competitive Pricing and Regulatory Reform"	1988
Program for Integrating Economics and National Security: Second Annual Colloquium	
"Arming Decisions Under Asymmetric Information"	1988
European Association for Research in Industrial Economics	
"U.S. Railroad Deregulation and the Public Interest"	1987
"Economic Rationales for the Scope of Privatization"	1989

"Discussion of Licensing of Innovations"	1990
Annenberg Conference on Rate of Return Regulation in the Presence of Rapid Technical Change	
"Discussion of Regulatory Mechanism Design in the Presence of Research, Innovation, and Spillover Effects"	1987
Special Brookings Papers Meeting	
"Discussion of Empirical Approaches to Strategic Behavior"	1987
"New Merger Guidelines"	1990
Deregulation or Regulation for Telecommunications in the 1990's	
"How Effective are State and Federal Regulations?"	1987
Conference Board Roundtable on Antitrust	
"Research and Production Joint Ventures"	1990
"Intellectual Property and Antitrust"	1987
Current Issues in Telephone Regulation	
"Economic Approaches to Market Dominance: Applicability of Contestable Markets"	1987
Harvard Business School Forum on Telecommunications	
"Regulation of Information Services"	1987
The Fowler Challenge: Deregulation and Competition in The Local Telecommunications Market	
"Why Reinvent the Wheel?"	1986
World Bank Seminar on Frontiers of Economics	
"What Every Economist Should Know About Contestable Markets"	1986
Bell Communications Research Conference on Regulation and Information	
"Fuzzy Regulatory Rules"	1986
Karl Eller Center Forum on Telecommunications	
"The Changing Economic Environment in Telecommunications: Technological Change and Deregulation"	1986
Railroad Accounting Principles Board Colloquium	
"Contestable Market Theory and ICC Regulation"	1986
Canadian Embassy Conference on Current Issues in Canadian -- U.S. Trade and Investment	
"Regulatory Revolution in the Infrastructure Industries"	1985
Eagleton Institute Conference on Telecommunications in Transition	
"Industry in Transition: Economic and Public Policy Overview"	1985

Brown University Citicorp Lecture "Logic of Regulation and Deregulation"	1985
Columbia University Communications Research Forum "Long Distance Competition Policy"	1985
American Enterprise Institute Public Policy Week "The Political Economy of Regulatory Reform"	1984
MIT Communications Forum "Deregulation of AT&T Communications"	1984
Bureau of Census Longitudinal Establishment Data File and Diversification Study Conference "Potential Uses of The File"	1984
Federal Bar Association Symposium on Joint Ventures "The Economics of Joint Venture Assessment"	1984
Hoover Institute Conference on Antitrust "Antitrust for High-Technology Industries"	1984
NSF Workshop on Predation and Industrial Targeting "Current Economic Analysis of Predatory Practices"	1983
The Institute for Study of Regulation Symposium: Pricing Electric, Gas, and Telecommunications Services Today and for the Future "Contestability As A Guide for Regulation and Deregulation"	1984
University of Pennsylvania Economics Day Symposium "Contestability and Competition: Guides for Regulation and Deregulation"	1984
Pinhas Sapir Conference on Economic Policy in Theory and Practice "Corporate Governance and Market Structure"	1984
Centre of Planning and Economic Research of Greece "Issues About Industrial Deregulation"	1984
"Contestability: New Research Agenda"	1984
Hebrew and Tel Aviv Universities Conference on Public Economics "Social Welfare Dominance Extended and Applied to Excise Taxation"	1983
NBER Conference on Industrial Organization and International Trade "Perspectives on Horizontal Mergers in World Markets"	1983

Workshop on Local Access: Strategies for Public Policy "Market Structure and Government Intervention in Access Markets"	1982
NBER Conference on Strategic Behavior and International Trade "Industrial Strategy with Committed Firms: Discussion"	1982
Columbia University Graduate School of Business, Conference on Regulation and New Telecommunication Networks "Local Pricing in a Competitive Environment"	1982
International Economic Association Roundtable Conference on New Developments in the Theory of Market Structure "Theory of Contestability"	1982
"Product Dev., Investment, and the Evolution of Market Structures"	1982
N.Y.U. Conference on Competition and World Markets: Law and Economics "Competition and Trade Policy--International Predation"	1982
CNRS-ISPE-NBER Conference on the Taxation of Capital "Welfare Effects of Investment Under Imperfect Competition"	1982
Internationales Institut fur Management und Verwaltung Regulation Conference "Welfare, Regulatory Boundaries, and the Sustainability of Oligopolies"	1981
NBER-Kellogg Graduate School of Management Conference on the Econometrics of Market Models with Imperfect Competition "Discussion of Measurement of Monopoly Behavior: An Application to the Cigarette Industry"	1981
The Peterkin Lecture at Rice University "Deregulation: Ideology or Logic?"	1981
FTC Seminar on Antitrust Analysis "Viewpoints on Horizontal Mergers"	1982
"Predation as a Tactical Inducement for Exit"	1980
NBER Conference on Industrial Organization and Public Policy "An Economic Definition of Predation"	1980
The Center for Advanced Studies in Managerial Economics Conference on The Economics of Telecommunication "Pricing Local Service as an Input"	1980
Aspen Institute Conference on the Future of the Postal Service "Welfare Economics of Postal Pricing"	1979

Department of Justice Antitrust Seminar "The Industry Performance Gradient Index"	1979
Eastern Economic Association Convention "The Social Performance of Deregulated Markets for Telecom Services" 1979	
Industry Workshop Association Convention "Customer Equity and Local Measured Service"	1979
Symposium on Ratemaking Problems of Regulated Industries "Pricing Decisions and the Regulatory Process"	1979
Woodrow Wilson School Alumni Conference "The Push for Deregulation"	1979
NBER Conference on Industrial Organization "Intertemporal Sustainability"	1979
World Congress of the Econometric Society "Theoretical Industrial Organization"	1980
Institute of Public Utilities Conference on Current Issues in Public Utilities Regulation "Network Access Pricing"	1978
ALI-ABA Conference on the Economics of Antitrust "Predatoriness and Discriminatory Pricing"	1978
AEI Conference on Postal Service Issues "What Can Markets Control?"	1978
University of Virginia Conference on the Economics of Regulation "Public Interest Pricing"	1978
DRI Utility Conference "Marginal Cost Pricing in the Utility Industry: Impact and Analysis"	1978
International Meeting of the Institute of Management Sciences "The Envelope Theorem"	1977
University of Warwick Workshop on Oligopoly "Industry Performance Gradient Indexes"	1977
North American Econometric Society Convention "Intertemporal Sustainability"	1979
"Social Welfare Dominance"	1978

"Economies of Scope, DAIC, and Markets with Joint Production"	1977
Telecommunications Policy Research Conference	
"Transition to Competitive Markets"	1986
"InterLATA Capacity Growth, Capped NTS Charges and Long Distance Competition"	1985
"Market Power in The Telecommunications Industry"	1984
"FCC Policy on Local Access Pricing"	1983
"Do We Need a Regulatory Safety Net in Telecommunications?"	1982
"Anticompetitive Vertical Conduct"	1981
"Electronic Mail and Postal Pricing"	1980
"Monopoly, Competition and Efficiency": Chairman	1979
"A Common Carrier Research Agenda"	1978
"Empirical Views of Ramsey Optimal Telephone Pricing"	1977
"Recent Research on Regulated Market Structure"	1976
"Some General Equilibrium Views of Optimal Pricing"	1975
National Bureau of Economic Research Conference on Theoretical Industrial Organization	
"Compensating Variation as a Measure of Welfare Change"	1976
Conference on Pricing in Regulated Industries: Theory & Application	
"Ramsey Optimal Pricing of Long Distance Telephone Services"	1977
NBER Conference on Public Regulation	
"Income Distributional Concerns in Regulatory Policy-Making"	1977
Allied Social Science Associations National Convention	
"Merger Guidelines and Economic Theory"	1990
Discussion of "Competitive Rules for Joint Ventures"	1989
"New Schools in Industrial Organization"	1988
"Industry Economic Analysis in the Legal Arena"	1987
"Transportation Deregulation"	1984
Discussion of "Pricing and Costing of Telecommunications Services"	1983
Discussion of "An Exact Welfare Measure"	1982
"Optimal Deregulation of Telephone Services"	1982
"Sector Differentiated Capital Taxes"	1981
"Economies of Scope"	1980
"Social Welfare Dominance"	1980
"The Economic Definition of Predation"	1979
Discussion of "Lifeline Rates, Succor or Snare?"	1979
"Multiproduct Technology and Market Structure"	1978
"The Economic Gradient Method"	1978
"Methods for Public Interest Pricing"	1977
Discussion of "The Welfare Implications of New Financial Instruments"	1976
"Welfare Theory of Concentration Indices"	1976
Discussion of "Developments in Monopolistic Competition Theory"	1976

"Hedonic Price Adjustments"	1975
"Public Good Attributes of Information and its Optimal Pricing"	1975
"Risk Invariance and Ordinally Additive Utility Functions"	1974
"Consumer's Surplus: A Rigorous Cookbook"	1974
University of Chicago Symposium on the Economics of Regulated Public Utilities	
"Optimal Prices for Public Purposes"	1976
American Society for Information Science	
"The Social Value of Information: An Economist's View"	1975
Institute for Mathematical Studies in the Social Sciences Summer Seminar	
"The Sustainability of Natural Monopoly"	1975
U.S.-U.S.S.R. Symposium on Estimating Costs and Benefits of Information Services	
"The Evaluation of the Economic Benefits of Productive Information"	1975
NYU-Columbia Symposium on Regulated Industries	
"Ramsey Optimal Public Utility Pricing"	1975

Research Seminars:

Bell Communications Research (2)	University of California, San Diego
Bell Laboratories (numerous)	University of Chicago
Department of Justice (3)	University of Delaware
Electric Power Research Institute	University of Florida
Federal Reserve Board	University of Illinois
Federal Trade Commission (4)	University of Iowa (2)
Mathematica	Universite Laval
Rand	University of Maryland
World Bank (3)	University of Michigan
Carleton University	University of Minnesota
Carnegie-Mellon University	University of Oslo
Columbia University (4)	University of Pennsylvania (3)
Cornell University (2)	University of Toronto
Georgetown University	University of Virginia

Harvard University (2)
Hebrew University
Johns Hopkins University (2)
M. I. T. (4)

New York University (4)
Northwestern University (2)
Norwegian School of Economics and
Business Administration

University of Wisconsin
University of Wyoming
Vanderbilt University
Yale University (2)
Princeton University (many)
Rice University
Stanford University (5)
S.U.N.Y. Albany

Appendix B
Robert Willig Expert Testimony Provided in the Last Four Years

1. In the Matter of Verizon New Jersey, Inc. – Resolution for Assistance Resolving Interconnection Negotiations with US Cable of Paramus/Hillsdale, Time Warner Cable, Cablevision, and Comcast; Before the State of New Jersey Office of Board of Public Utilities, Docket No. CO07070524; Expert Report 4/21/2008; Testimony 5/12/2008.
2. New England Carpenters Health Benefits Fund et al.v. First Databank, Inc., and McKesson Corp. In the United States District Court for the District of Massachusetts, Civil Action: 1:05-CV-11148-PBS, Expert Report 1/24/2007; Rebuttal Expert Declaration 5/07/2007; Expert Declaration 10/15/2007; Rebuttal Expert Declaration 11/08/2007; Expert Declaration 11/28/2007. Expert Declaration 5/21/08. Expert Report 10/1/08.
3. AT&T and Centennial; Before the Federal Communications Commission; WT Docket No. 08-246; Expert Report 11/20/2008.
4. In the Matter of Lisa Reed and Cindy Digiannantonio v. Advocate Health Care, et al. In the Northern District of Illinois Eastern Division, Civil Action No. 06 C 3337; Expert Report 1/20/2009; Supplemental 2/27/2009; Deposition Testimony 3/23/2009-3/24/2009.
5. In the matter of Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Mobile Wireless Including Commercial Mobile Services; Before the Federal Communications Commission; WT Docket No. 09-66; Declaration, 9/30/09.
6. Cindy Cullen, Wendy Fleishman, on Behalf of Themselves and All Others Similarly Situated v. Albany Medical Center, Ellis Hospital, Northeast Health, Seton Health System, and St. Peter's Health Care Service, In the United States District Court for the Northern District of New York, Civil Action No. 06-CV-0765/ TJM/ DRH; Expert Report 2/29/2008; Deposition 3/27-28/2008; Expert Report 9/4/2009; Deposition 11/19-20/2009, Declaration 12/28/2009.
7. In the Australian Competition Tribunal: Re: Application for Review of the Deemed Decision by the Commonwealth Treasurer of 23 May 2006 under Section 44H(9) of the Trade Practices Act 1974 (CTH) in Relation to the Application for Declaration of Services Provided by the Mount Newman Railway Line, By: Fortescue Metals Group Limited; Re: Application for Review of the Deemed Decision by the Commonwealth Treasurer of 27 October 2008 under Section 44H(1) of the Trade Practices Act 1974 (CTH) in Relation to the Application for Declaration of Services Provided by the Robe RailwayBy: Robe River Mining Co PTY LTD & ORS; Re: Application for Review of the Deemed Decision by the Commonwealth Treasurer of 27

October 2008 under Section 44H(1) of the Trade Practices Act 1974 (CTH) in Relation to the Application for Declaration of Services Provided by the Hamersley Rail Network, By: Hamersley Iron Co PTY LTD & ORS; Re: Application for Review of the Deemed Decision by the Commonwealth Treasurer of 27 October 2008 under Section 44H(1) of the Trade Practices Act 1974 (CTH) in Relation to the Application for Declaration of Services Provided by the Goldsworthy Railway, By: BHP Billiton Iron Ore PTY LTD and BHP Billiton Minerals PTY LTD; Expert Report 6/30/2009 and 9/18/2009, Trial Testimony 11/2/2009-11/6/2009.

8. Stagecoach Group PLC and Coach USA, Inc., et al, Acquisition of Control, Twin America, LLC, Before the Surface Transportation Board, Verified Statement of Professor Robert D. Willig, Submitted November 17, 2009.
9. In re: Rail Freight Fuel Surcharge Antitrust Litigation, In the United States District Court for the District of Columbia, MDL Docket No. 1869, Misc. No. 07-489 (PLF), Expert Report, 8/1/2010, deposition 8/4/2010
10. Before the Federal Reserve Bank: Docket Number R-1404: Proposed Rule on Debit Card Interchange Fees and Routing, written statement 2/22/2011.
11. Before the Surface Transportation Board: Docket Number EP 704: Review of Commodity, Boxcar, and TOFC/COFC Exemptions; written statement 1/31/2011; testimony at hearing 2/23, 24/2011.
12. New Zealand Commerce Commission vs. Malaysian Airline Systems Berhad, Ltd. and et. al.; High Court of New Zealand: CV 2008-404-8350, Brief of Evidence 4/28/2011, Trial testimony 5/20/11 and 5/23-27/2011.
13. Before the Federal Communications Commission: Docket Number 11-65: For Consent to Assign or Transfer Control Licenses and Authorization, written reply statement 6/9/2011.
14. In Re: Checking Account Overdraft Litigation, MDL No. 2036 In the United States District Court for the Southern District of Florida, Miami Division, Case No. 09-MD-02036-JLK, Luquetta v. JPMorgan Chase Bank, Declaration In Support of JP Morgan Chase Bank, N.A.'s Opposition to Class Certification, June 16, 2011.
15. Before the Surface Transportation Board: Docket Number EP 705: Competition in the Rail Industry, written statement 4/12/2011, written reply statement 5/27/2011, testimony at hearing 6/22, 23/2011.
16. In the Matter of Rambus Inc. v. Micron Technology, Inc., et al. In the Superior Court of the State of California County of San Francisco, Civil Action No. 04-431105; Expert Report 11/08/2008; Supplemental Expert Report 12/19/2008, Deposition Testimony 5/7/2009-5/8/2009, Trial testimony 9/1,6,7/2011.

17. In Re McKesson Governmental Entities Average Wholesale Price Litigation, Master File No.: 1:08-CV-10843-PBS; The Board of County Commissioners of Douglas County, Kansas et al. v. McKesson Corp., Expert Report, April 14, 2010, Response Report, June 28, 2010; Related to Connecticut v. McKesson Corp., Expert Report, April 14, 2010; Related to Montana v. McKesson Corporation, Expert Report, November 8, 2010; Related to Oklahoma v. McKesson Corporation, Expert Report, November 8, 2010; San Francisco Health Plan, et al. v. McKesson Corporation, Rebuttal Expert Report, September 19, 2011.
18. Before the Public Service Commission of Maryland, Case No.: 9271, In the Matter of the Merger of Exelon Corp. and Constellation Energy Group, Inc., written Market Power Rebuttal Testimony, 10/17/2011, written Surrebuttal Testimony, 10/26/2011, Hearing testimony, 11/2011.
19. In Re TFT-LCD (Flat Panel) Antitrust Litigation, In the United States District Court Northern District of California San Francisco Division, DELL Inc., *et al.*, v. SHARP Corporation, *et al.*, Case No. 3:10-cv-01064 SI MDL No. 3:07-md-1827-SI, expert report, 2/23/2012, deposition, 4/18/2012.
20. In Re TFT-LCD (Flat Panel) Antitrust Litigation, In the United States District Court Northern District of California San Francisco Division, Motorola Mobility Inc. v. SHARP Corporation, *et al.*, Case No. 3:09-cv-05840SI MDL No. 3:07-md-1827-SI, expert report, 2/23/2012, deposition, 4/18/2012.
21. In Re TFT-LCD (Flat Panel) Antitrust Litigation, In the United States District Court Northern District of California San Francisco Division, AT&T Mobility Inc. v. SHARP Corporation, *et al.*, Case No. 09-cv-4997 SI MDL No. 07-m-1827-SI, expert report, 2/27/2012, deposition, 4/18/2012.
22. In Re TFT-LCD (Flat Panel) Antitrust Litigation, In the United States District Court Northern District of California San Francisco Division, BEST BUY CO., Inc., *et al.*, v. AU OPTRONICS CORP., *et al.*, Case No. 10-cv-4572 SI MDL No. 07-md-1827-SI, expert report, 3/5/2012, deposition, 4/18/2012.
23. Clark R. Huffman and Brandi K. Winters, individually and on behalf of all others similarly situated vs. PRUDENTIAL INSURANCE COMPANY of AMERICA, In the United States District Court for the Eastern District of Pennsylvania, Civ. No. 2:10-cv-05135-EL, declaration, 4/10/2012.
24. In re Prudential Insurance Company of America SGLI/VGLI Contract Litigation, CLASS ACTION, Master Case No. 3:11-md-02208-MAP, In the United States District Court for the District of Massachusetts, declaration, 5/10/2012.
25. Australian Competition and Consumer Commission v. Singapore Airlines Cargo PTE LTD et. al., Before the Federal Court of Australia, District

Registry: New South Wales, Division: General, No. NSD 1980 of 2008, NSD 363 of 2009, NSD 876 of 2009 and NSD 1213 of 2009, Affidavit and expert report, 7/12/2012.

26. Bandspeed, Inc. v. Sony Electronics, Inc. et al. and Cambridge Silicon Radio Limited, Cause No. A-11-CV-771-LY, in the United States District Court for the Western District of Texas, Austin Division, expert report, 9/21/2012.

Appendix C

Documents Considered

"Brief in Support of Plaintiffs' Motion for Summary Judgment and, if Necessary, to Preserve the Status Quo, a Preliminary Injunction," NCAA, et al, v. Christie, et al, 8/10/2012

"Complaint for Declarative and Injunctive Relief," NCAA, et al, v. Christie, et al, 8/7/2012

"Plaintiffs' Memorandum of Law in Opposition to Defendants' Motion to Dismiss the Complaint," NCAA, et al, v. Christie, et al, 10/1/2012

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Deposition of Allan H. Selig, November 9, 2012

Deposition of Lawrence L. Ferazani, Jr., November 5, 2012

Deposition of Rachel Newman Baker, October 30, 2012

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